

=> FILE REG

FILE 'REGISTRY' ENTERED AT 15:19:11 ON 09 MAR 2007  
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=> DISPLAY HISTORY FULL L1-

FILE 'REGISTRY' ENTERED AT 13:00:37 ON 09 MAR 2007

E ETHYLENE SULFONE/CN  
L1 1 SEA "ETHYLENE SULFONE"/CN  
E PROPYLENE SULFONE/CN  
E PROPYLENESULFONE/CN  
E PROPYLENE EPISULFONE/CN

FILE 'LREGISTRY' ENTERED AT 13:04:50 ON 09 MAR 2007

L2 STR  
L3 0 SEA SSS SAM L2  
L4 1 SEA SSS FUL L2  
L5 STR  
L6 2 SEA SSS SAM L5  
L7 43 SEA SSS FUL L5  
SEL L7 43 RN  
L8 1 SEA 126-33-0/BI  
L9 STR  
L10 0 SEA SSS SAM L9  
L11 1 SEA SSS FUL L9  
L12 STR  
L13 0 SEA SSS SAM L12  
L14 0 SEA SSS FUL L12

FILE 'REGISTRY' ENTERED AT 13:16:44 ON 09 MAR 2007

L15 0 SEA SSS SAM L12  
E C7H14O2S/MF  
E C6H12O2S/MF  
L16 376 SEA C6H12O2S/MF  
L17 7 SEA L16 AND SC6/ES  
E THIEPANE, 1,1-DIOXIDE/CN  
E THIEPANE-1,1-DIOXIDE/CN  
E THIEPANE, 1,1-DIOXIDE/CN  
L18 1 SEA "THIEPANE, 1,1-DIOXIDE"/CN  
L19 1 SEA 5687-92-3  
L20 1 SEA 126-33-0  
L21 1 SEA 4988-33-4  
L22 4 SEA L19 OR L20 OR L21 OR L18

FILE 'LREGISTRY' ENTERED AT 13:25:56 ON 09 MAR 2007

L23 STR

FILE 'REGISTRY' ENTERED AT 13:28:26 ON 09 MAR 2007

L24 SCR 2043 OR 1929 OR 1918 OR 1992 OR 2006 OR 2016 OR 2022  
L25 50 SEA SSS SAM L23 NOT L24  
L26 6500 SEA SSS FUL L23 NOT L24  
SAV L26 WEI086/A  
SAV L22 WEI086A/A  
E AIBN/CN  
L27 1 SEA AIBN/CN

FILE 'HCAPLUS' ENTERED AT 14:44:56 ON 09 MAR 2007

L28 12959 SEA PARK Y?/AU  
L29 1674 SEA JUNG W?/AU  
L30 7955 SEA KIM G?/AU  
L31 2280 SEA JUNG C?/AU  
L32 1 SEA L28 AND L29 AND L30 AND L31  
SEL RN

FILE 'REGISTRY' ENTERED AT 14:46:52 ON 09 MAR 2007

L33 54 SEA (10377-51-2/BI OR 10411-26-4/BI OR 105-58-8/BI OR  
L34 11 SEA L33 AND ?PEROX?/CNS  
L35 26 SEA L33 AND C H O/ELF AND 3/ELC.SUB  
L36 15 SEA L35 NOT L34

FILE 'HCA' ENTERED AT 14:52:38 ON 09 MAR 2007

L37 233708 SEA (BATTERY OR BATTERIES OR (ELECTROCHEM? OR ELECTROLY?  
OR GALVANI? OR WET OR DRY OR PRIMARY OR SECONDARY) (2A) (CE  
LL OR CELLS) OR WETCELL? OR DRYCELL?)/BI,AB  
L38 10444 SEA L26  
L39 4292 SEA L22  
L40 19204 SEA L27 OR AIBN#  
L41 14017 SEA L34  
L42 138 SEA L37 AND L38  
L43 5 SEA L42 AND L41  
L44 406 SEA L37 AND L39  
L45 6 SEA L44 AND L41  
L46 3 SEA L42 AND L40  
L47 3 SEA L44 AND L40

FILE 'REGISTRY' ENTERED AT 15:02:16 ON 09 MAR 2007

L48 0 SEA L33 AND PMS/CI

FILE 'HCA' ENTERED AT 15:03:09 ON 09 MAR 2007

L49 QUE ?ACRYLIC? OR ?ACRYLAT?

FILE 'REGISTRY' ENTERED AT 15:03:16 ON 09 MAR 2007

ACT POLYOLS/A

L50 ( 16) SEA (GLYCEROL OR DIGLYCEROL OR TRIGLYCEROL OR TETRAGLYCEROL OR PENTAGLYCEROL OR HEXAGLYCEROL OR TRIMETHYLOL METHANE OR TRIMETHYLOLETHANE OR TRIMETHYLOLPROPANE OR PENTAERYTHRITOL OR DIPENTAERYTHRITOL OR TRIPENTAERYTHRITOL OR SORBITOL OR INOSITOL) /CN

L51 ( 1) SEA 7426-71-3  
L52 17 SEA L51 OR L50

L53 2 SEA L33 AND L52

FILE 'HCA' ENTERED AT 15:04:10 ON 09 MAR 2007  
L54 169858 SEA L52 OR POLYOL# OR POLYALC# OR POLYALCOHOL## OR POLYHYDRIC?

L55 478282 SEA ELECTROLY?  
L56 7 SEA L55 AND (L38 OR L39) AND L41  
L57 4 SEA L55 AND (L38 OR L39) AND L40  
L58 5 SEA (L37 OR L55) AND (L38 OR L39) AND (L40 OR L41) AND L49  
L59 4 SEA (L37 OR L55) AND (L38 OR L39) AND (L40 OR L41) AND L54  
L60 3 SEA L58 AND L59

FILE 'REGISTRY' ENTERED AT 15:10:01 ON 09 MAR 2007  
L61 470902 SEA (C(L)H(L)O)/ELS (L) 3/ELC.SUB AND 4/O  
L62 4237 SEA L61 AND ?PEROX?/CNS

FILE 'HCA' ENTERED AT 15:11:18 ON 09 MAR 2007  
L63 449025 SEA L62 OR ?PEROXID? OR ?PEROXY?  
L64 24839 SEA L62  
L65 6 SEA (L37 OR L55) AND (L38 OR L39) AND L40  
L66 76508 SEA AZO OR AZOS  
L67 4 SEA (L37 OR L55) AND (L38 OR L39) AND L66  
L68 28 SEA (L37 OR L55) AND (L38 OR L39) AND L63  
L69 8 SEA (L37 OR L55) AND (L38 OR L39) AND L64  
L70 8 SEA L43 OR L45 OR L56  
L71 6 SEA L46 OR L47 OR L57  
L72 6 SEA L58 OR L59 OR L60  
L73 12 SEA L65 OR L67 OR L69  
L74 20 SEA L68 NOT L73  
L75 13 SEA 1840-2002/PY,PRY AND L74

=> FILE HCA

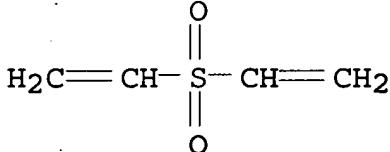
FILE 'HCA' ENTERED AT 15:20:15 ON 09 MAR 2007  
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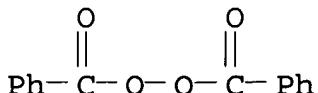
=> D L73 1-12 CBIB ABS HITSTR HITIND

L73 ANSWER 1 OF 12 HCA COPYRIGHT 2007 ACS on STN  
 146:145946 **Electrolyte** for lithium secondary **battery**  
 . Kim, Cheonsoo (Samsung Sdi Co., Ltd., S. Korea). U.S. Pat. Appl.  
 Publ. US 2007009806 A1 20070111, 11pp. (English). CODEN: USXXCO.  
 APPLICATION: US 2006-481911 20060707. PRIORITY: KR 2005-61409  
 20050707.

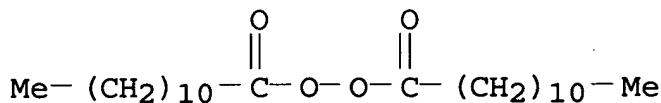
AB The invention concerns an **electrolyte** for a lithium secondary **battery** and a lithium secondary **battery** having the **electrolyte**, the **electrolyte** including a lithium salt; a non-aq. org. solvent including  $\gamma$ -butyrolactone-; and a succinic anhydride.  
 IT 77-77-0, Divinyl sulfone  
 (electrolyte for lithium secondary **battery**)  
 RN 77-77-0 HCA  
 CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



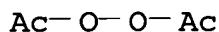
IT 94-36-0, Dibenzoyl peroxide, reactions 105-74-8,  
 Dilauroyl peroxide 110-22-5, Diacetyl peroxide  
 2372-21-6, tert-Butyl peroxy isopropyl carbonate  
 3851-87-4, Bis(3,5,5-trimethylhexanoyl) peroxide  
 34443-12-4, tert-Butyl peroxy-2-ethylhexyl carbonate  
 (electrolyte for lithium secondary **battery**)  
 RN 94-36-0 HCA  
 CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



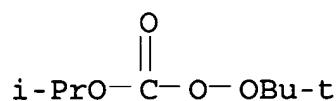
RN 105-74-8 HCA  
 CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



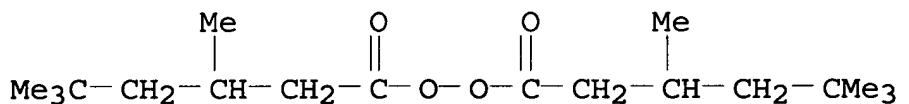
RN 110-22-5 HCA  
 CN Peroxide, diacetyl (9CI) (CA INDEX NAME)



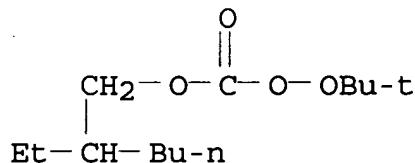
RN 2372-21-6 HCA  
 CN Carbonoperoxoic acid, OO-(1,1-dimethylethyl) O-(1-methylethyl) ester (9CI) (CA INDEX NAME)



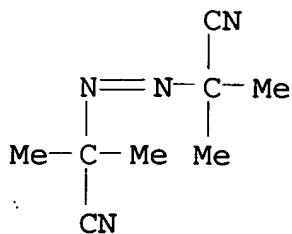
RN 3851-87-4 HCA  
 CN Peroxide, bis(3,5,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



RN 34443-12-4 HCA  
 CN Carbonoperoxoic acid, OO-(1,1-dimethylethyl) O-(2-ethylhexyl) ester (9CI) (CA INDEX NAME)



IT 78-67-1, 2,2'-Azo-bis(isobutyronitrile)  
 (electrolyte for lithium secondary battery)  
 RN 78-67-1 HCA  
 CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



INCL 429329000; 429332000; 429200000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST electrolyte lithium secondary battery

IT Battery electrolytes

(electrolyte for lithium secondary battery)

IT Aromatic hydrocarbons, uses

Esters, uses

Ethers, uses

Ketones, uses

(electrolyte for lithium secondary battery)

IT Secondary batteries

(lithium; electrolyte for lithium secondary battery)

IT 77-77-0, Divinyl sulfone 96-48-0,  $\gamma$ -Butyrolactone

108-30-5, Succinic anhydride, uses 872-36-6, Vinylene carbonate

3741-38-6, Ethylene sulfite 25721-76-0, Poly(ethylene

glycol)dimethacrylate 26570-48-9, Poly(ethylene glycol)diacrylate

49717-87-5, uses 919110-87-5

(electrolyte for lithium secondary battery)

IT 94-36-0, Dibenzoyl peroxide, reactions 105-64-6,

Di-isopropyl peroxydicarbonate 105-74-8, Dilauroyl

peroxide 107-71-1, tert-Butyl peroxy acetate 109-13-7,

tert-Butyl peroxy isobutyrate 110-22-5, Diacetyl peroxide

614-45-9, tert-Butyl peroxy benzoate 686-31-7, tert-Amylperoxy

2-ethyl hexanoate 927-07-1, tert-Butyl peroxy pivalate

2372-21-6, tert-Butyl peroxy isopropyl carbonate

3006-82-4, tert-Butylperoxy-2-ethyl hexanoate 3851-87-4,

Bis(3,5,5-trimethylhexanoyl) peroxide 13122-18-4 15518-51-1,

Diethylene glycol bis(tert-butyl peroxy carbonate) 15520-11-3,

Bis(4-tert-butylcyclohexyl) peroxydicarbonate 16111-62-9,

Di-2-ethylhexyl peroxy dicarbonate 26748-38-9, tert-Butyl peroxy

neohexanoate 29240-17-3, tert-Amyl peroxy pivalate

34443-12-4, tert-Butyl peroxy-2-ethylhexyl carbonate

36536-42-2 51938-28-4, tert-Hexyl peroxy pivalate 52238-68-3

68860-54-8 919110-90-0

(electrolyte for lithium secondary battery)

IT 71-43-2, Benzene, uses 78-67-1, 2,2'-Azo

-bis(isobutyronitrile) 96-49-1, Ethylene carbonate 105-58-8,

Diethyl carbonate 108-32-7, Propylene carbonate 108-67-8, Mesitylene, uses 108-86-1, Bromobenzene, uses 108-88-3, Toluene, uses 108-90-7, Chlorobenzene, uses 462-06-6, Fluorobenzene 463-79-6D, Carbonic acid, ester 616-38-6, Dimethyl carbonate 623-53-0, EthylMethyl carbonate 623-96-1, Dipropyl carbonate 1330-20-7, Xylene, uses 2094-98-6 4419-11-8, 2,2'-Azo -bis(2,4-dimethyl valeronitrile) 4437-70-1, 2,3-Butylene carbonate 4437-85-8, 1,2-Butylene carbonate 4437-86-9 7447-41-8, Lithium chloride, uses 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethylpropyl carbonate 37220-89-6, Aluminum lithium oxide 56525-42-9, Methylpropyl carbonate 89489-56-5, 1,2-Pentylene carbonate 90076-65-6 114435-02-8, Fluoroethylene carbonate 131651-65-5

(electrolyte for lithium secondary battery)

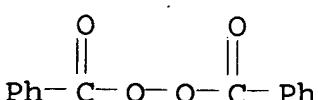
L73 ANSWER 2 OF 12 HCA COPYRIGHT 2007 ACS on STN

142:264348 **Electrolyte** for rechargeable lithium **battery**. Lee, Yong-Beom; Song, Eui-Hwan; Kim, Kwang-Sup; Earmme, Tae-Shik; Kim, You-Mee (Samsung SDI Co., Ltd., S. Korea). Eur. Pat. Appl. EP 1508934 A1 20050223, 32 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR. (English). CODEN: EPXXDW. APPLICATION: EP 2004-90320 20040819. PRIORITY: KR 2003-57716 20030820; KR 2004-5874 20040129.

AB Disclosed is an **electrolyte** for a rechargeable lithium **battery**, including a mixt. of org. solvents including a cyclic solvent and a nitrile-based solvent represented by the formula R-C.tplbond.N (R is from C1-10 aliph. hydrocarbons, C1-10 halogenated aliph. hydrocarbons, C6-10 arom. hydrocarbons, and C6-10 halogenated arom. hydrocarbons) and a lithium salt.

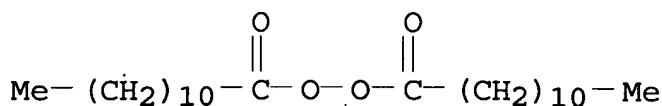
IT 94-36-0, Dibenzoyl peroxide, processes 105-74-8, Dilauroyl peroxide 110-22-5, Diacetyl peroxide 2372-21-6, tert-Butyl peroxy isopropyl carbonate 3851-87-4, Bis(3,5,5-trimethyl)hexanoyl peroxide 34443-12-4, tert-Butyl peroxy 2-ethylhexyl carbonate (electrolyte for rechargeable lithium **battery**)

RN 94-36-0 HCA  
CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



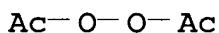
RN 105-74-8 HCA

CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



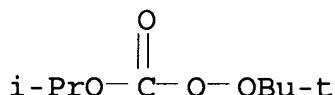
RN 110-22-5 HCA

CN Peroxide, diacetyl (9CI) (CA INDEX NAME)



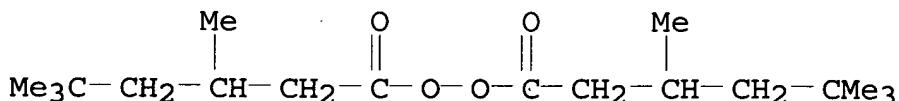
RN 2372-21-6 HCA

CN Carbonoperoxoic acid, OO-(1,1-dimethylethyl) O-(1-methylethyl) ester (9CI) (CA INDEX NAME)



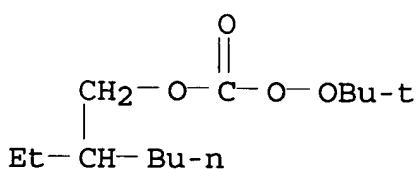
RN 3851-87-4 HCA

CN Peroxide, bis(3,5,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



RN 34443-12-4 HCA

CN Carbonoperoxoic acid, OO-(1,1-dimethylethyl) O-(2-ethylhexyl) ester (9CI) (CA INDEX NAME)

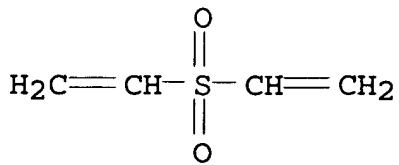


IT 77-77-0, DiVinyl sulfone

(electrolyte for rechargeable lithium **battery**)

RN 77-77-0 HCA

CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



IC ICM H01M010-40  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 38  
 ST **electrolyte rechargeable lithium battery**  
 IT Nitriles, uses  
     (aliph., C1-10; **electrolyte for rechargeable lithium battery**)  
 IT Nitriles, uses  
     (arom., C6-10; **electrolyte for rechargeable lithium battery**)  
 IT **Battery electrolytes**  
     (**electrolyte for rechargeable lithium battery**)  
 IT Lactones  
     (**electrolyte for rechargeable lithium battery**)  
 IT **Secondary batteries**  
     (lithium; **electrolyte for rechargeable lithium battery**)  
 IT Peroxides, uses  
     (org.; **electrolyte for rechargeable lithium battery**)  
 IT 94-36-0, Dibenzoyl peroxide, processes 105-74-8,  
 Dilauroyl peroxide 107-71-1, tert-Butylperoxy acetate 109-13-7,  
 tert-Butylperoxyisobutyrate 110-22-5, Diacetyl peroxide  
 614-45-9, tert-Butylperoxy benzoate 686-31-7, tert-Amylperoxy  
 2-ethylhexanoate 927-07-1, tert-Butyl peroxypivalate  
 2372-21-6, tert-Butyl peroxy isopropyl carbonate  
 3006-82-4, tert-Butyl peroxy-2-ethyl hexanoate 3851-87-4,  
 Bis(3,5,5-trimethyl)hexanoyl peroxide 4419-11-8,  
 2,2'-Azobis(2,4-dimethylvaleronitrile) 13122-18-4,  
 tert-Butylperoxy 3,5,5-trimethylhexanoate 15518-51-1, Diethylene  
 glycol bis(tert-butylperoxycarbonate) 15520-11-3,  
 Di(4-tert-butylcyclohexyl)peroxydicarbonate 25551-14-8  
 26748-38-9, tert-Butyl peroxy neoheptanoate 26748-41-4, tert-Butyl  
 peroxy neodecanoate 29240-17-3, tert-Amyl peroxypivalate  
 34443-12-4, tert-Butyl peroxy 2-ethylhexyl carbonate  
 36536-42-2, 1,6-Hexanediol bis(tert-butyl peroxycarbonate)  
 51240-95-0, 1,1,3,3-Tetramethylbutyl peroxy neodecanoate  
 51938-28-4, tert-Hexylperoxypivalate 52238-68-3,

Bis(3-methoxybutyl) peroxydicarbonate 68860-54-8 96989-15-0  
845717-44-4

(electrolyte for rechargeable lithium **battery**)

IT 79-20-9, Methyl acetate 96-48-0,  $\gamma$ -Butyrolactone 96-49-1,  
Ethylene carbonate 105-58-8, Diethyl carbonate 106-70-7, Methyl  
hexanoate 107-12-0, Propionitrile 107-31-3, Methyl formate  
108-29-2,  $\gamma$ -Valerolactone 108-32-7, Propylene carbonate  
109-74-0, Butyronitrile 110-59-8, Valeronitrile 124-12-9,  
Caprylonitrile 140-29-4, Phenylacetonitrile 141-78-6, Ethyl  
acetate, uses 326-62-5, 2-FluoroPhenylacetonitrile 394-47-8,  
2-Fluorobenzonitrile 459-22-3, 4-FluoroPhenylacetonitrile  
502-44-3,  $\epsilon$ -Caprolactone 542-28-9,  $\delta$ -Valerolactone  
542-52-9, Dibutyl carbonate 616-38-6, Dimethyl carbonate  
623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate  
629-08-3, Heptanenitrile 630-18-2, tert-Butyl cyanide 695-06-7,  
 $\gamma$ -Caprolactone 766-05-2, Cyclohexanecarbonitrile  
1194-02-1, 4-Fluorobenzonitrile 4254-02-8,  
Cyclopentanecarbonitrile 4437-85-8, Butylene carbonate  
7439-93-2D, Lithium, salt 7791-03-9, Lithium perchlorate  
12190-79-3, Cobalt lithium oxide (CoLiO<sub>2</sub>) 14024-11-4, Lithium  
tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate  
18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium  
hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate  
33454-82-9, Lithium triflate 57381-51-8, 4-Chloro-2-fluoro-  
benzonitrile 60702-69-4, 2-Chloro-4-fluoro-benzonitrile  
90076-65-6 90240-74-7 127813-79-0 132843-44-8 179802-95-0,  
Cobalt lithium manganese nickel oxide (Co<sub>0.1</sub>LiMn<sub>0.1</sub>Ni<sub>0.8</sub>O<sub>2</sub>)  
845717-45-5

(electrolyte for rechargeable lithium **battery**)

IT 75-05-8, Acetonitrile, uses 77-77-0, DiVinyl sulfone  
105-64-6, Di-isopropylperoxydicarbonate 628-73-9, Capronitrile  
872-36-6, Vinylene carbonate 3741-38-6, Ethylene sulfite  
16111-62-9, Bis(2-ethylhexyl) peroxydicarbonate 22537-94-6  
71331-99-2, Bis(4-tert-butylcyclohexyl)peroxycarbonate  
114435-02-8, Fluoroethylene carbonate

(electrolyte for rechargeable lithium **battery**)

L73 ANSWER 3 OF 12 HCA COPYRIGHT 2007 ACS on STN

140:394771 Study on the wastewater treated by the iron chip micro-  
electrolysis. Ma, Qian; Ye, Shaodan; Li, Yijiu; Liu, Yafei;  
Ni, Yaming (School of Life Science and Technology Analysis and  
Research Center, Tongji University, Shanghai, 200092, Peop. Rep.  
China). Gongye Shuichuli, 23(5), 38-41 (Chinese) 2003. CODEN:  
GOSHFA. ISSN: 1005-829X. Publisher: Gongye Shuichuli Zazhishe.

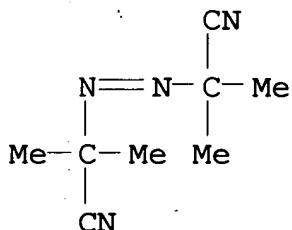
AB The photoresist-contg. wastewater was treated by the Fe chip micro-

**electrolysis** method. The inorg. and org. pollutants in the wastewater after the treatment were analyzed by ICP-AES and GC-MS. There were several kinds of mechanisms for the removal or degrdn. of contaminants, such as the electrochem. corrosion, activated C absorption, coagulation sedimentation of Fe<sup>3+</sup> and Fe<sup>2+</sup>, the redn. of Fe, etc. The removal efficiency for heavy metals such as Cu, Zn, V, and Sn was 100, 47, 100, and 98.1%, resp. The removal efficiency for phthalic anhydride, homologs of polypropylene glycol, 2-butenoic acid, and benzoic acid were 100, 29.9, 27.7, and 56.5%, resp. The degradability for nitrobenzene and 2-chlorobutenoic acid was all 100%.

IT 78-67-1, Azobis(isobutyronitrile) 3112-85-4,  
Methyl phenyl sulfone  
(iron chip micro-**electrolysis** of photoresist-contg.  
wastewater)

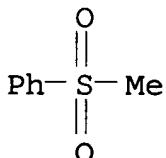
RN 78-67-1 HCA

CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



RN 3112-85-4 HCA

CN Benzene, (methylsulfonyl)- (CA INDEX NAME)



CC 60-2 (Waste Treatment and Disposal)

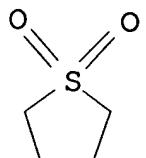
IT Wastewater treatment  
(absorption; iron chip micro-**electrolysis** of  
photoresist-contg. wastewater)

IT Wastewater treatment  
(coagulation; iron chip micro-**electrolysis** of  
photoresist-contg. wastewater)

IT Wastewater treatment  
(electrochem.; iron chip micro-**electrolysis** of  
photoresist-contg. wastewater)

IT Heavy metals

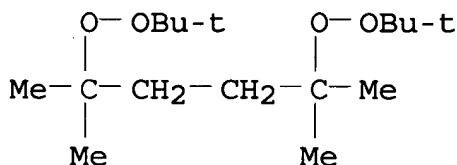
- Polyoxyalkylenes, processes  
 (iron chip micro-electrolysis of photoresist-contg.  
 wastewater)
- IT Wastewater treatment  
 (settling; iron chip micro-electrolysis of  
 photoresist-contg. wastewater)
- IT 7439-89-6, Iron, uses  
 (iron chip micro-electrolysis of photoresist-contg.  
 wastewater)
- IT 65-85-0, Benzoic acid, processes 70-55-3, 4-  
 Methylbenzenesulfonamide 78-67-1, Azobis(isobutyronitrile)  
 85-44-9, Phthalic anhydride 98-95-3, Nitrobenzene, processes  
 100-52-7, Benzaldehyde, processes 104-76-7, 2-Ethyl-1-hexanol  
 119-61-9, Benzophenone, processes 121-69-7, N,N-Dimethylaniline,  
 processes 123-86-4, Butyl acetate 600-13-5 619-56-7,  
 4-Chlorobenzamide 822-06-0, Hexamethylene diisocyanate 930-68-7,  
 2-Cyclohexenone 3112-85-4, Methyl phenyl sulfone  
 3724-65-0, 2-Butenoic acid 7440-31-5, Tin, processes 7440-50-8,  
 Copper, processes 7440-62-2, Vanadium, processes 7440-66-6,  
 Zinc, processes 13423-22-8, 3,3,4,4-Tetramethyl-2-azetidinone  
 25322-69-4, Polypropylene glycol 29911-27-1  
 (iron chip micro-electrolysis of photoresist-contg.  
 wastewater)
- L73 ANSWER 4 OF 12 HCA COPYRIGHT 2007 ACS on STN  
 140:256340 Anodes for lithium **battery**. Kim, Yong-tae; Choi,  
 Su-suk; Choi, Yun-suk; Lee, Kyoung-hee (Samsung Sdi Co., Ltd., S.  
 Korea). U.S. Pat. Appl. Publ. US 2004058232 A1 20040325, 10 pp.  
 (English). CODEN: USXXCO. APPLICATION: US 2003-664157 20030917.  
 PRIORITY: KR 2002-57577 20020923.
- AB A lithium neg. electrode for a lithium **battery** has good  
 cycle life and capacity characteristics. The lithium neg. electrode  
 comprises a lithium metal layer and a protective layer present on  
 the lithium metal layer, where the protective layer includes an  
 organosulfur compd. An organosulfur compd. having a thiol terminal  
 group is preferred since such a compd. can form a complex with  
 lithium metal to enable coating to be carried out easily. The  
 organosulfur compd. has a large no. of S or N elements having high  
 electronegativity to form a complex with lithium ions, so it renders  
 lithium ions to be deposited relatively evenly on the lithium metal  
 surface, reducing dendrite formation.
- IT 126-33-0, Sulfolane  
 (anodes for lithium **battery**)
- RN 126-33-0 HCA
- CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



IT 78-63-7, 2,5-Dimethyl-2,5-di-(tert-butylperoxy)hexane  
 78-67-1, Azobisisobutyronitrile 94-36-0, Dibenzoyl  
 peroxide, uses 105-74-8, Dilauroyl peroxide  
 762-12-9, Didecanoyl peroxide 2167-23-9,  
 2,2-Di-(tert-butylperoxy)butane 3025-88-5,  
 2,5-Dihydroperoxy-2,5-dimethylhexane 15667-10-4,  
 1,1-Di-(tert-amylperoxy)cyclohexane 95732-35-7  
 (anodes for lithium **battery**)

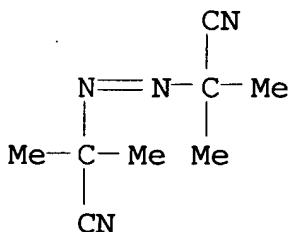
RN 78-63-7 HCA

CN Peroxide, (1,1,4,4-tetramethyl-1,4-butanediyl)bis[(1,1-dimethylethyl) (9CI) (CA INDEX NAME)



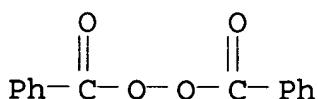
RN 78-67-1 HCA

CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



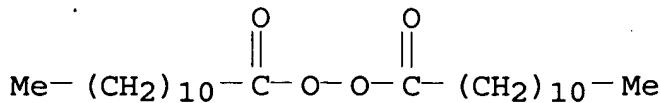
RN 94-36-0 HCA

CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



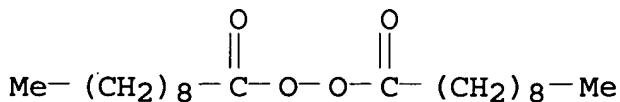
RN 105-74-8 HCA

CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



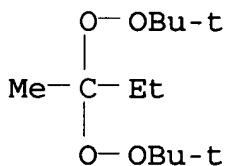
RN 762-12-9 HCA

CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



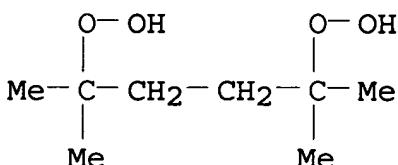
RN 2167-23-9 HCA

CN Peroxide, (1-methylpropylidene)bis[(1,1-dimethylethyl) (9CI) (CA INDEX NAME)



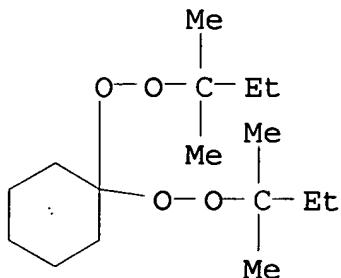
RN 3025-88-5 HCA

CN Hydroperoxide, (1,1,4,4-tetramethyl-1,4-butanediyl)bis- (9CI) (CA INDEX NAME)

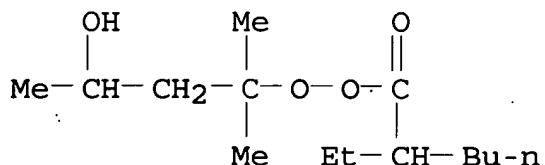


RN 15667-10-4 HCA

CN Peroxide, cyclohexylidenebis[(1,1-dimethylpropyl) (9CI) (CA INDEX NAME)



RN 95732-35-7 HCA

CN Hexaneperoxoic acid, 2-ethyl-, 3-hydroxy-1,1-dimethylbutyl ester  
(CA INDEX NAME)

IC ICM H01M002-16

ICS H01M004-66; H01M004-40

INCL 429137000; 429246000; 429245000; 429212000; 429231950

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 38ST anode lithium **battery**

IT Chalcogenides

Oxides (inorganic), uses

(Li-contg.; anodes for lithium **battery**)

IT Peroxides, uses

(acyl; anodes for lithium **battery**)

IT Hydroperoxides

(alkyl, tertiary; anodes for lithium **battery**)

IT Peroxides, uses

(alkyl; anodes for lithium **battery**)IT **Battery** anodes

Coating materials

Conducting polymers

(anodes for lithium **battery**)

IT Acrylic polymers, uses

Polyanilines

Polyoxyalkylenes, uses

(anodes for lithium **battery**)

IT Amino acids, uses

Halogens

Lewis acids

- Rare earth chlorides  
 Sulfonic acids, uses  
 Transition metal compounds  
 (dopant; anodes for lithium **battery**)
- IT Primary **batteries**  
 Secondary **batteries**  
 (lithium; anodes for lithium **battery**)
- IT Esters, uses  
 Ketals  
 (peroxy; anodes for lithium **battery**)
- IT Crown ethers  
 Polybenzimidazoles  
 Polyquinolines  
 Polyquinoxalines  
 (thiophenes, polymers; anodes for lithium **battery**)
- IT 110-71-4 111-96-6, Diglyme 126-33-0, Sulfolane  
 646-06-0, 1,3-Dioxolane 7439-93-2, Lithium, uses 7704-34-9,  
 Sulfur, uses  
 (anodes for lithium **battery**)
- IT 67-63-0, Isopropyl alcohol, uses 75-91-2, tert-Butyl hydroperoxide  
 78-63-7, 2,5-Dimethyl-2,5-di-(tert-butylperoxy)hexane  
 78-67-1, Azobisisobutyronitrile 80-15-9, Cumene  
 hydroperoxide 80-43-3, Dicumyl peroxide 94-36-0,  
 Dibenzoyl peroxide, uses 105-74-8, Dilauroyl peroxide  
 110-05-4, Di-tert-butyl peroxide 123-23-9, Succinic acid peroxide  
 762-12-9, Didecanoyl peroxide 927-07-1,  
 tert-Butylperoxypivalate 2167-23-9, 2,2-Di-(tert-  
 butylperoxy)butane 3025-88-5, 2,5-Dihydroperoxy-2,5-  
 dimethylhexane 4511-39-1, tert-Amylperoxybenzoate  
 15667-10-4, 1,1-Di-(tert-amylperoxy)cyclohexane  
 16066-38-9, Di(n-propyl)peroxy dicarbonate 16111-62-9,  
 Di(2-ethylhexyl)peroxy dicarbonate 19910-65-7, Di(sec-butyl)peroxy  
 dicarbonate 24937-05-1, Poly(ethyleneadipate) 24938-43-0,  
 Poly( $\beta$ -propiolactone) 24969-06-0, Polyepichlorohydrin  
 25190-62-9, Poly(p-phenylene) 25233-30-1, Polyaniline  
 25233-30-1D, Polyaniline, sulfonated 25233-34-5, Polythiophene  
 25233-34-5D, Polythiophene, derivs. 25322-68-3, Peo 25322-69-4,  
 Polypropylene oxide 25667-11-2, Poly(ethylenesuccinate)  
 25721-76-0, Polyethylene glycol dimethacrylate 25852-49-7,  
 Polypropylene glycol dimethacrylate 26570-48-9, Poly(ethylene  
 glycol diacrylate) 26748-47-0,  $\alpha$ -Cumylperoxyneodecanoate  
 34099-48-4, Peroxydicarbonate 52496-08-9,  
 Poly(propyleneglycoldiacrylate) 55794-20-2, Ethyl  
 3,3-di-(tert-butylperoxy)butyrate 95732-35-7 97332-10-0,  
 Poly(N-propylaziridine) 139096-57-4, Isoquinoline homopolymer  
 172973-34-1  
 (anodes for lithium **battery**)
- IT 865-44-1, Iodine trichloride 1493-13-6, Triflic acid 7446-11-9,

Sulfur trioxide, uses 7550-45-0, Titanium chloride (TiCl<sub>4</sub>) (T-4)-, uses 7553-56-2, Iodine, uses 7601-90-3, Perchloric acid, uses 7637-07-2, uses 7647-01-0, Hydrochloric acid, uses 7647-19-0, Phosphorus pentafluoride 7664-39-3, Hydrofluoric acid, uses 7664-93-9, Sulfuric acid, uses 7697-37-2, Nitric acid, uses 7705-08-0, Ferric chloride, uses 7721-01-9, Tantalum chloride (TaCl<sub>5</sub>) 7726-95-6, Bromine, uses 7782-44-7, Oxygen, uses 7782-50-5, Chlorine, uses 7783-68-8, Niobium fluoride nbf5 7783-70-2, Antimony pentafluoride 7783-81-5 7783-82-6 7783-93-9, Silver perchlorate 7784-36-3, Arsenic pentafluoride 7789-21-1, Fluorosulfonic acid 7789-33-5, Iodine monobromide 7790-94-5, Chlorosulfonic acid 7790-99-0, Iodine monochloride 10026-11-6 10026-12-7, Niobium chloride (NbCl<sub>5</sub>) 10277-43-7, Lanthanum nitrate hexahydrate 10294-33-4, Boron tribromide 10294-34-5 13283-01-7 13499-05-3 13709-32-5, Bis(fluorosulfonyl)peroxide 13774-85-1 13819-84-6, Molybdenum fluoride mof5 13870-10-5, Iron chloride oxide feocl 13873-84-2, Iodine monofluoride 14635-75-7, Nitrosyl tetrafluoroborate 14797-73-0, Perchlorate 14874-70-5, Tetrafluoroborate 16871-80-0, Nitrosyl hexachloroantimonate 16887-00-6, Chloride, uses 16919-18-9, Hexafluorophosphate 16941-92-7, Hexachloroiridic acid 16973-45-8, Hexafluoroarsenate 17111-95-4 17856-92-7 20461-54-5, Iodide, uses 24959-67-9, Bromide, uses 25321-43-1, Octylbenzenesulfonic acid 27176-87-0, Dodecylbenzene sulfonic acid

(dopant; anodes for lithium **battery**)

- IT 540-63-6, 1,2-Ethanedithiol 1072-71-5, 2,5-Dimercapto-1,3,4-thiadiazole 2001-93-6, 2,4-Dimercaptopyrimidine 2150-02-9, Bis(2-mercaptopethyl)ether 3570-55-6, Bis(2-mercaptopethyl)sulfide 9002-98-6 9002-98-6D, derivs. 37306-44-8D, Triazole, mercapto derivs 131538-50-6 135886-78-1 135886-79-2  
(protective coating; anodes for lithium **battery**)
- IT 7704-34-9D, Sulfur, organosulfur compd.  
(protective layer; anodes for lithium **battery**)
- IT 273-77-8, 1,2,3-Benzothiadiazole 612-79-3, 6,6'-Biquinoline 25013-01-8, Polypyridine 25013-01-8D, Polypyridine, derivs. 26856-35-9, Dihydrophenanthrene 27986-50-1, Poly(1,3-cyclohexadiene) 30604-81-0, Polypyrrole 30604-81-0D, Polypyrrole, derivs. 51937-67-8, Polyferrocene 71730-08-0, Polyanthraquinone 136902-52-8, 2,2'-Bipyridine homopolymer 136902-52-8D, 2,2'-Bipyridine homopolymer, derivs. 190201-51-5, Pyrimidine homopolymer 190201-57-1, 1,5-Naphthyridine homopolymer (thiophenes, polymers; anodes for lithium **battery**)

L73 ANSWER 5 OF 12 HCA COPYRIGHT 2007 ACS on STN

140:238483 **Electrolyte for a lithium battery.** Park,

Yong-Chul; Jung, Won-Ii; Kim, Geun-Bae; Cho, Jae-Phil; Jung, Cheol-Soo (S. Korea). U.S. Pat. Appl. Publ. US 2004048163 A1

20040311, 13 pp. (English). CODEN: USXXCO. APPLICATION: US  
2003-656086 20030905. PRIORITY: KR 2002-53879 20020906.

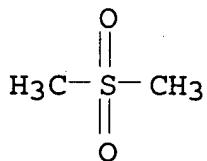
AB An **electrolyte** for a lithium **battery** includes a nonaq. org. solvent, a lithium salt, and an additive comprising (a) a sulfone-based compd. and (b) a C3-30 org. peroxide or **azo**-based compd. The **electrolyte** may further include a poly(ester) (meth)acrylate or a polymer that is derived from a (polyester)polyol with at least three hydroxyl (-OH) groups, where a portion or all of the hydroxyl groups are substituted with a (meth)acrylic ester and the remaining hydroxyl groups that are not substituted with the (meth)acrylic ester are substituted with a group having no radical reactivity. The lithium **battery** comprising the **electrolyte** of the present invention has a significantly improved charge-discharge and cycle life characteristics, recovery capacity ratio at high temp., and swelling inhibition properties.

IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone  
78-67-1, 2,2'-Azobisisobutyronitrile 94-36-0,  
Benzoyl peroxide, uses 105-74-8, Lauroyl peroxide  
126-33-0, Tetramethylene sulfone 127-63-9, Phenyl  
sulfone 620-32-6, Benzyl sulfone 1712-87-4,  
m-Toluoyl peroxide 92177-99-6, 3,3,5-Trimethylhexanoyl  
peroxide

(**electrolyte** for lithium **battery**)

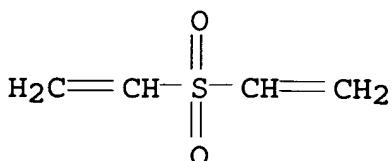
RN 67-71-0 HCA

CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)



RN 77-77-0 HCA

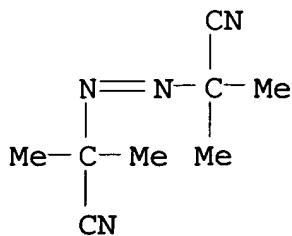
CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



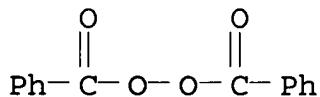
RN 78-67-1 HCA

CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)

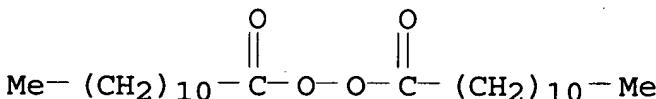
*Applicant*



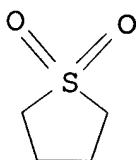
RN 94-36-0 HCA  
 CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



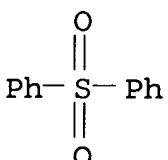
RN 105-74-8 HCA  
 CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



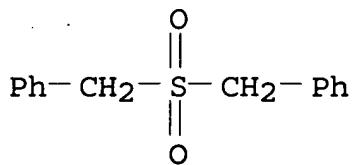
RN 126-33-0 HCA  
 CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



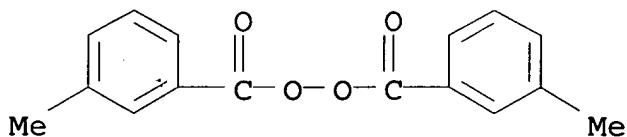
RN 127-63-9 HCA  
 CN Benzene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



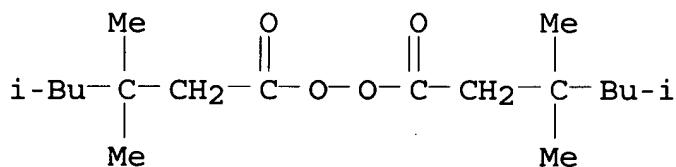
RN 620-32-6 HCA  
 CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (9CI) (CA INDEX NAME)



RN 1712-87-4 HCA  
 CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



RN 92177-99-6 HCA  
 CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



IC ICM H01M010-40  
 INCL 429326000; 429329000; 429339000; 429340000  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 38  
 ST lithium **battery** electrolyte  
 IT **Battery electrolytes**  
     (electrolyte for lithium **battery**)  
 IT Aromatic hydrocarbons, uses  
 Carbonates, uses  
 Esters, uses  
 Ethers, uses  
 Ketones, uses  
     (electrolyte for lithium **battery**)  
 IT **Azo** compounds  
     (electrolyte for lithium **battery**)  
 IT Carbonaceous materials (technological products)  
     (electrolyte for lithium **battery**)  
 IT Sulfones  
     (electrolyte for lithium **battery**)  
 IT Polyesters, uses  
     (hydroxy-terminated; electrolyte for lithium

- battery)
- IT Secondary batteries  
(lithium; electrolyte for lithium battery)
- IT Polyesters, uses  
(methacrylate; electrolyte for lithium battery  
)
- IT Peroxides, uses  
(org., C3-30; electrolyte for lithium battery  
)
- IT Esters, uses  
(poly-; electrolyte for lithium battery)
- IT Imides  
Sulfonic acids, uses  
(sulfonimides, perfluoro derivs., lithium salts;  
electrolyte for lithium battery)
- IT 56-81-5, Glycerol, uses 71-43-2, Benzene, uses 96-49-1, Ethylene carbonate 98-95-3, Nitrobenzene, uses 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 108-88-3, Toluene, uses 108-90-7, Chlorobenzene, uses 149-32-6, Erythritol 462-06-6, Fluorobenzene 616-38-6, Dimethyl carbonate 623-53-0, Methylethyl carbonate 623-96-1, Dipropyl carbonate 1330-20-7, Xylene, uses 4437-85-8, Butylene carbonate 7790-99-0, Iodine chloride (ICl) 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide (LiI) 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 27359-10-0, Trifluorotoluene 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate, uses 39300-70-4, Lithium nickel oxide 56525-42-9, Methyl propyl carbonate, uses 90076-65-6 131651-65-5, Lithium nonafluorobutanesulfonate 162684-16-4, Lithium manganese nickel oxide 193215-00-8, Cobalt lithium manganese nickel oxide Co0.1LiMn0.2Ni0.702  
(electrolyte for lithium battery)
- IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone  
78-67-1, 2,2'-Azobisisobutyronitrile 94-36-0,  
Benzoyl peroxide, uses 105-64-6, Diisopropyl peroxy dicarbonate 105-74-8, Lauroyl peroxide 126-33-0,  
Tetramethylene sulfone 127-63-9, Phenyl sulfone  
620-32-6, Benzyl sulfone 1561-49-5, Dicyclohexylperoxy dicarbonate 1712-87-4, m-Toluoyl peroxide 3006-82-4,  
tert-Butylperoxy-2-ethyl hexanoate 14666-78-5 15520-11-3,  
Bis(4-tert-butylcyclohexyl)peroxy dicarbonate 26748-41-4  
28452-93-9, Butadiene sulfone 32752-09-3, Isobutyl peroxide 92177-99-6; 3,3,5-Trimethylhexanoyl peroxide  
(electrolyte for lithium battery)
- IT 79-10-7DP, Acrylic acid, reaction product with dipentaerythritol and  $\epsilon$ -caprolactone and butylcarbonic acid 126-58-9DP,

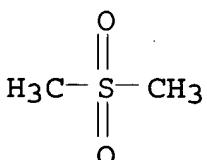
Dipentaerythritol, reaction product with  $\epsilon$ -caprolactone and acrylic acid and butylcarbonic acid 502-44-3DP,  
 $\epsilon$ -Caprolactone, reaction product with dipentaerythritol and acrylic acid and butylcarbonic acid 10411-26-4DP,  
MonoButylcarbonate, reaction product with dipentaerythritol and  $\epsilon$ -caprolactone and acrylic acid  
(electrolyte for lithium battery)

L73 ANSWER 6 OF 12 HCA COPYRIGHT 2007 ACS on STN  
140:149224 Nonaqueous **electrolytic** solution with improved safety for lithium **battery**. Kim, Jun-ho; Lee, Ha-young; Choy, Sang-hoon; Kim, Ho-sung (Samsung SDI Co., Ltd., S. Korea). U.S. Pat. Appl. Publ. US 2004029018 A1 20040212, 12 pp. (English). CODEN: USXXCO. APPLICATION: US 2003-637554 20030811. PRIORITY: KR 2002-47510 20020812.

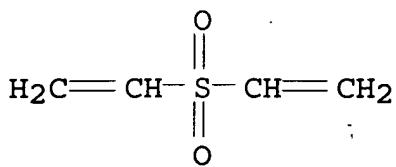
AB A nonaq. **electrolytic** soln. and a lithium **battery** employing the same include a lithium salt, an org. solvent, and a halogenated benzene compd. The use of the nonaq. **electrolytic** soln. causes formation of a polymer by oxidative decompn. of the **electrolytic** soln. even if a sharp voltage increase occurs due to overcharging of the **battery**, leading to consumption of an overcharge current, thus protecting the **battery**.

IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone  
94-36-0, Benzoylperoxide, uses 105-74-8, Lauroyl peroxide 126-33-0, Tetramethylene sulfone 127-63-9  
, Phenyl sulfone 620-32-6, Benzyl sulfone  
1712-87-4, m-Toluoyl peroxide 92177-99-6,  
3,3,5-Trimethylhexanoylperoxide  
(nonaq. **electrolytic** soln. with improved safety for lithium **battery**)

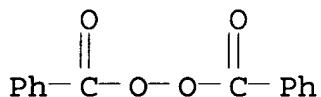
RN 67-71-0 HCA  
CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)



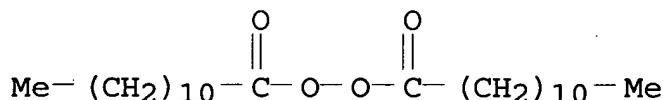
RN 77-77-0 HCA  
CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



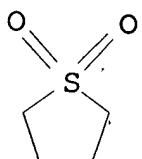
RN 94-36-0 HCA  
 CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



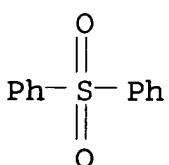
RN 105-74-8 HCA  
 CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



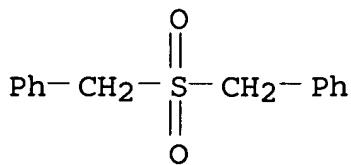
RN 126-33-0 HCA  
 CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



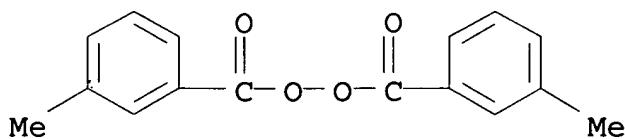
RN 127-63-9 HCA  
 CN Benzene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



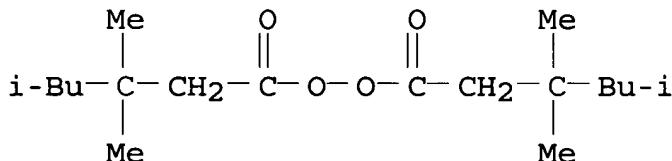
RN 620-32-6 HCA  
 CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (9CI) (CA INDEX NAME)



RN 1712-87-4 HCA  
 CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



RN 92177-99-6 HCA  
 CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



IC ICM H01M010-40  
 INCL 429326000; 429200000; 429340000; 429331000; 429332000  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST lithium **battery** nonaq **electrolyte** soln improved safety  
 IT Esters, uses  
 IT Ethers, uses  
 IT Hydrocarbons, uses  
 (C1-20; nonaq. **electrolytic** soln. with improved safety for lithium **battery**)  
 IT Aromatic hydrocarbons, uses  
 (C5-20; nonaq. **electrolytic** soln. with improved safety for lithium **battery**)  
 IT Secondary **batteries**  
 (lithium; nonaq. **electrolytic** soln. with improved safety for lithium **battery**)  
 IT **Battery electrolytes**  
 (nonaq. **electrolytic** soln. with improved safety for lithium **battery**)  
 IT Polyesters, uses  
 (nonaq. **electrolytic** soln. with improved safety for

- lithium **battery**)
- IT Alcohols, uses  
(polyhydric; nonaq. **electrolytic** soln. with improved safety for lithium **battery**)
- IT 3087-37-4, Tetrapropyltitanate  
(nonaq. **electrolytic** soln. with improved safety for lithium **battery**)
- IT 502-44-3,  $\epsilon$ -Caprolactone 7439-93-2D, Lithium, salt 12190-79-3, Cobalt lithium oxide colio2  
(nonaq. **electrolytic** soln. with improved safety for lithium **battery**)
- IT 126-58-9DP, Dipentaerythritol, deriv.  
(nonaq. **electrolytic** soln. with improved safety for lithium **battery**)
- IT 56-81-5, Glycerol, uses 67-71-0, Methyl sulfone 71-43-2D, Benzene, halogenated 77-77-0, Vinyl sulfone 94-36-0, Benzoylperoxide, uses 96-49-1, Ethylene carbonate 105-64-6, Diisopropyl peroxy dicarbonate 105-74-8, Lauroyl peroxide 108-32-7, Propylene carbonate 115-77-5, Pentaerythritol, uses 126-33-0, Tetramethylene sulfone 126-58-9, DiPentaerythritol 127-63-9, Phenyl sulfone 456-55-3, Trifluoromethyl phenyl ether 462-06-6, Fluorobenzene 620-32-6, Benzyl sulfone 623-53-0, Ethyl methyl carbonate 1561-49-5, Dicyclohexyl peroxy dicarbonate 1712-87-4, m-Toluoyl peroxide 2972-19-2 3006-82-4, tert-Butylperoxy-2-ethylhexanoate 9002-88-4, Polyethylene 9003-07-0, Polypropylene 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl) peroxydicarbonate 21151-56-4, Benzene, 1-chloro-4-(chloromethoxy)-21324-40-3, Lithium hexafluorophosphate 28452-93-9, Butadiene sulfone 32752-09-3, Isobutyl peroxide 49717-97-7, 2-Propenoic acid, 2-methyl-, ion(1-) homopolymer, uses 92177-99-6, 3,3,5-Trimethylhexanoylperoxide 651294-25-6 651294-26-7 651294-27-8  
(nonaq. **electrolytic** soln. with improved safety for lithium **battery**)

L73 ANSWER 7 OF 12 HCA COPYRIGHT 2007 ACS on STN  
139:294681 **Electrolyte** for lithium **battery** to reduce overcharge and improve electrochemical characteristics. Kim, Jun-Ho; Lee, Ha-Young; Choy, Sang-Hoon; Kim, Ho-Sung; Noh, Hyeong-Gon (Samsung SDI Co., Ltd., S. Korea). U.S. Pat. Appl. Publ. US 2003190529 A1 20031009, 19 pp. (English). CODEN: USXXCO. APPLICATION: US 2003-393294 20030321. PRIORITY: KR 2002-18264 20020403.

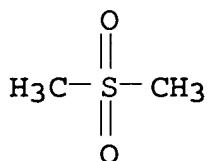
AB An **electrolyte** for a lithium **battery** includes a nonaq. org. solvent, a lithium salt, and an additive comprising (a) a compd. represented by the formula  $[(R_1)_nC_6H(6-n+m)(X)_m]$ , and (b) a compd. selected from the group consisting of a sulfone-based compd.,

a poly(ester) (meth)acrylate, a polymer of poly(ester) (meth)acrylate, and a mixt. thereof: wherein R1 is a C1-10 alkyl, a C 1-10 alkoxy, or a C6-10 aryl, and preferably a Me, Et, or methoxy, X is a halogen, and m and n are integers ranging from 1 to 5, where m+n is less than or equal to 6.

IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone  
 94-36-0, Benzoyl peroxide, uses 105-74-8, Lauroyl peroxide 126-33-0, Tetramethylene sulfone 127-63-9, Phenyl sulfone 620-32-6, Benzyl sulfone 1712-87-4, m-Toluoyl peroxide 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide  
 (electrolyte for lithium **battery** to reduce overcharge and improve electrochem. characteristics)

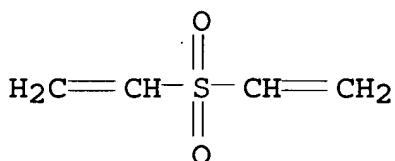
RN 67-71-0 HCA

CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)



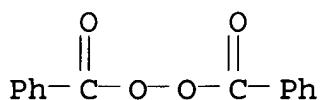
RN 77-77-0 HCA

CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



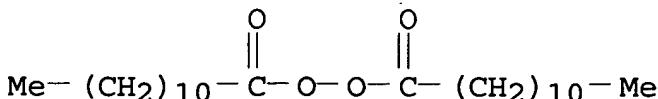
RN 94-36-0 HCA

CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



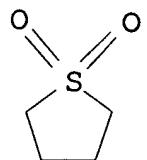
RN 105-74-8 HCA

CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



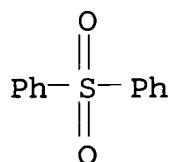
RN 126-33-0 HCA

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



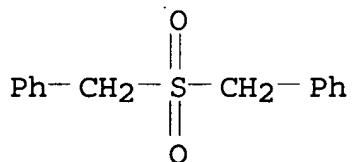
RN 127-63-9 HCA

CN Benzene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



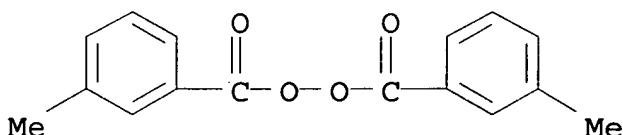
RN 620-32-6 HCA

CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (9CI) (CA INDEX NAME)



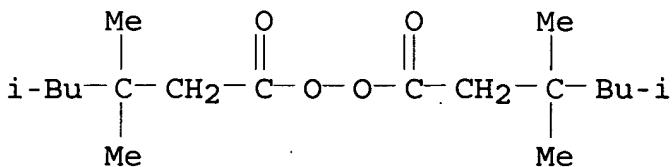
RN 1712-87-4 HCA

CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



RN 92177-99-6 HCA

CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



- IC ICM H01M006-18  
 INCL 429307000; 429309000; 429326000; 429322000; 429323000; 429330000  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST lithium **battery electrolyte** overcharge lowering  
 IT **Battery electrolytes**  
     (electrolyte for lithium **battery** to reduce  
     overcharge and improve electrochem. characteristics)  
 IT **Secondary batteries**  
     (lithium; **electrolyte** for lithium **battery** to  
     reduce overcharge and improve electrochem. characteristics)  
 IT **Peroxides, uses**  
     (org.; **electrolyte** for lithium **battery** to  
     reduce overcharge and improve electrochem. characteristics)  
 IT **Alcohols, uses**  
     (trihydric; **electrolyte** for lithium **battery**  
     to reduce overcharge and improve electrochem. characteristics)  
 IT 3087-37-4, **Tetrapropyltitanate**  
     (electrolyte for lithium **battery** to reduce  
     overcharge and improve electrochem. characteristics)  
 IT 71-43-2, **Benzene**, uses 96-49-1, **Ethylene carbonate** 105-58-8,  
 Diethyl carbonate 108-32-7, **Propylene carbonate** 108-88-3,  
 Toluene, uses 462-06-6, **Fluorobenzene** 616-38-6, **Dimethyl**  
 carbonate 623-53-0, **Ethyl methyl carbonate** 623-96-1, **Dipropyl**  
 carbonate 1330-20-7, **Xylene**, uses 4437-85-8, **Butylene carbonate**  
 7447-41-8, **Lithium chloride (LiCl)**, uses 7791-03-9, **Lithium**  
 perchlorate 10377-51-2, **Lithium iodide (LiI)** 12355-58-7, **Lithium**  
 aluminate (Li<sub>5</sub>AlO<sub>4</sub>) 14283-07-9, **Lithium tetrafluoroborate**  
 18424-17-4, **Lithium hexafluoroantimonate** 21324-40-3, **Lithium**  
 hexafluorophosphate 27359-10-0, **Trifluorotoluene** 29935-35-1,  
**Lithium hexafluoroarsenate** 33454-82-9, **Lithium triflate**  
 35363-40-7, **Ethyl propyl carbonate**, uses 56525-42-9, **Methyl propyl**  
 carbonate, uses 90076-65-6 131651-65-5, **Lithium**  
 perfluorobutanesulfonate  
     (electrolyte for lithium **battery** to reduce  
     overcharge and improve electrochem. characteristics)  
 IT 126-58-9DP, **Dipentaerythritol**, reaction product with  
 $\epsilon$ -caprolactone 502-44-3DP,  $\epsilon$ -Caprolactone,  
 reaction product with dipentaerythritol 609772-45-4P  
     (electrolyte for lithium **battery** to reduce  
     overcharge and improve electrochem. characteristics)

IT 56-81-5, Glycerol, uses 67-71-0, Methyl sulfone  
 77-77-0, Vinyl sulfone 79-10-7D, Acrylic acid,  
 $\omega$ -fatty acid esters C2-C21 79-41-4D, Methacrylic acid,  
 $\omega$ -fatty acid esters C2-C21 94-36-0, Benzoyl  
 peroxide, uses 104-92-7, 4-Bromoanisole 105-64-6, Diisopropyl  
 peroxy dicarbonate 105-74-8, Lauroyl peroxide  
 126-33-0, Tetramethylene sulfone 127-63-9, Phenyl  
 sulfone 149-32-6, Erythritol 452-10-8; 2,4-Difluoroanisole  
 456-49-5, 3-Fluoroanisole 459-60-9, 4-Fluoroanisole  
 620-32-6, Benzyl sulfone 623-12-1, 4-Chloroanisole  
 1561-49-5, Dicyclohexyl peroxy dicarbonate 1712-87-4,  
 $m$ -Toluoyl peroxide 2398-37-0, 3-Bromoanisole 2845-89-8,  
 3-Chloroanisole 3006-82-4, tert-Butylperoxy-2-ethyl-hexanoate  
 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl)peroxy  
 dicarbonate 28452-93-9, Butadiene sulfone 32752-09-3, Isobutyl  
 peroxide 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide  
 93343-10-3, 3,5-Difluoroanisole 202925-08-4, 3-Chloro-5-  
 fluoroanisole 609365-67-5  
 (electrolyte for lithium **battery** to reduce  
 overcharge and improve electrochem. characteristics)

L73 ANSWER 8 OF 12 HCA COPYRIGHT 2007 ACS on STN

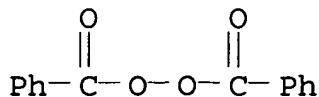
139:182872 Polymer **electrolyte** for lithium secondary  
**battery**. Jung, Cheol-Soo; Kim, Ki-Ho; Bong, Cul-Hwen; Yang,  
 Doo-Kyung; Lee, Kyoung-Hee; Lee, Yong-Beom; Lim, Hyun-Leong;  
 Yamaguchi, Takitaro; Shimizu, Ryuichi (Samsung SDI Co., Ltd., S.  
 Korea). U.S. Pat. Appl. Publ. US 2003157411 A1 20030821, 14 pp.  
 (English). CODEN: USXXCO. APPLICATION: US 2002-287486 20021105.  
 PRIORITY: KR 2002-8303 20020216.

AB A solid polymer **electrolyte**, a lithium **battery**  
 employing the same, and methods of forming the **electrolyte**  
 and the lithium **battery** are disclosed. The polymer  
**electrolyte** includes polyester methacrylate having a  
 polyester polyol moiety having three or more hydroxide (-OH) groups,  
 at least one hydroxide group being substituted by a methacrylic ester  
 group and at least one hydroxide group being substituted by a  
 radical non-reactive group, or its polymer, a peroxide having 6-40  
 carbon atoms, and an **electrolytic** soln. including a  
 lithium salt and an org. solvent.

IT 94-36-0, Benzoyl peroxide, processes 105-74-8,  
 Lauroyl peroxide  
 (polymer **electrolyte** for lithium secondary  
**battery**)

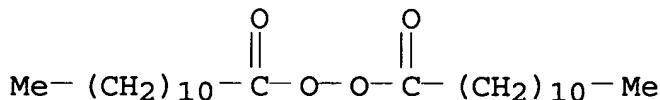
RN 94-36-0 HCA

CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



RN 105-74-8 HCA

CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)

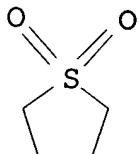


IT 126-33-0, Sulfolane

(polymer electrolyte for lithium secondary  
battery)

RN 126-33-0 HCA

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



IC ICM H01M010-40

ICS H01M010-04

INCL 429317000; 429307000; 429316000; 029623100

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 38

ST polymer electrolyte lithium secondary battery

IT Aromatic hydrocarbons, uses

(fluoro; polymer electrolyte for lithium secondary  
battery)

IT Secondary batteries

(lithium; polymer electrolyte for lithium secondary  
battery)

IT Battery electrolytes

Polymer electrolytes

(polymer electrolyte for lithium secondary  
battery)

IT Polyesters, uses

(polymer electrolyte for lithium secondary  
battery)

IT 3087-37-4, Tetrapropyltitanate

(polymer electrolyte for lithium secondary

**battery)**

- IT 94-36-0, Benzoyl peroxide, processes 105-74-8,  
 Lauroyl peroxide  
 (polymer electrolyte for lithium secondary  
 battery)
- IT 67-68-5, Dmso, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile,  
 uses 96-47-9, 2-Methyltetrahydrofuran 96-48-0,  
 $\gamma$ -Butyrolactone 96-49-1, Ethylene carbonate 98-95-3,  
 Nitrobenzene, uses 100-47-0, Benzonitrile, uses 105-58-8,  
 Diethyl carbonate 108-32-7, Propylene carbonate 108-90-7,  
 Chlorobenzene, uses 109-99-9, Thf, uses 110-71-4,  
 1,2-Dimethoxyethane 111-46-6, Diethylene glycol, uses 115-10-6,  
 Dimethyl ether 126-33-0, Sulfolane 127-19-5,  
 Dimethylacetamide 542-52-9, Dibutyl carbonate 616-38-6, Dimethyl  
 carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl  
 carbonate 646-06-0, Dioxolane 872-36-6, Vinylene carbonate  
 1072-47-5, 1,3-Dioxolane, 4-methyl 1300-21-6, Dichloroethane  
 4437-85-8, Butylene carbonate 6482-34-4, Diisopropyl carbonate  
 7447-41-8, Lithium chloride (LiCl), uses 7791-03-9, Lithium  
 perchlorate 9002-88-4, Polyethylene 9003-07-0, Polypropylene  
 10377-51-2, Lithium iodide (LiI) 14024-11-4, Aluminum lithium  
 chloride allicl4 14283-07-9, Lithium tetrafluoroborate  
 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium  
 hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate  
 30714-78-4, Ethyl butyl carbonate 33454-82-9, Lithium triflate  
 51729-83-0, Methyl isopropyl carbonate 56525-42-9, Methyl propyl  
 carbonate, uses 90076-65-6 131651-65-5  
 (polymer electrolyte for lithium secondary  
 battery)
- IT 95-52-3, 2-Fluorotoluene 352-32-9, 4-Fluorotoluene 352-70-5,  
 3-Fluorotoluene 462-06-6, Benzene, fluoro- 581054-59-3D, mixed  
 acrylic and pentanoic acid esters  
 (polymer electrolyte for lithium secondary  
 battery)

L73 ANSWER 9 OF 12 HCA COPYRIGHT 2007 ACS on STN

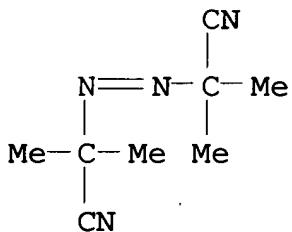
126:114265 Toxicity assessment of the samples from water environment  
 using cultured mammalian cells. Kunimoto, Manabu; Yasuhara, Akio;  
 Soma, Yuko; Nakasugi, Osami (Environmental Health Sciences Division,  
 National Institute Environmental Studies, Tsukuba, 305, Japan).  
 Mizu Kankyo Gakkaishi, 19(11), 855-860 (English) 1996. CODEN:  
 MKGAEY. ISSN: 0916-8958. Publisher: Nippon Mizu Kankyo Gakkai.

AB To evaluate the toxicity other than mutagenicity or carcinogenicity  
 present in the water environment, in vitro cytotoxicity tests using  
 cultured mammalian cells were utilized. Cytotoxicity was estd.  
 based on the changes in viable cell nos. of  
 primary rat cerebellar cells, rat pheochromocytoma  
 cell PC 12h, and normal rat kidney epithelial cell NRK-52E.

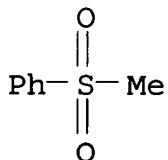
Evaluation of these in vitro systems was performed by testing ref. chems. proposed by MEIC (Multicenter Evaluation of In Vitro Cytotoxicity), an international program for the validation of in vitro cytotoxicity tests. When cells in culture were exposed to landfill leachate for 48 h, viable cell nos. decreased dose dependently. However, fractions prep'd. by condensation and extn. from the leachates showed much less effects on the viable cell nos. Their individual cytotoxicity did not account for that of unfractionated leachate, suggesting that component(s) with higher cytotoxicity may not be successfully recovered during the condensation and extn. process. Among the silica-gel column fractions of acetone-exts. of sediment samples, fractions eluted with acetone showed the highest cytotoxicity. These results indicate that the cytotoxicity of water samples like landfill leachates or of their exts. can be detected with the present assay system but toxic components may not be recovered quant. during the condensation and extn. process.

IT 78-67-1,  $\alpha,\alpha'$ -Azobis(isobutyronitrile)  
 3112-85-4, Methyl phenyl sulfone  
 (toxicity assessment of the samples from water environment using cultured mammalian cells)

RN 78-67-1 HCA  
 CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



RN 3112-85-4 HCA  
 CN Benzene, (methylsulfonyl)- (CA INDEX NAME)



CC 4-1 (Toxicology)  
 Section cross-reference(s): 61  
 IT 50-06-6, Phenobarbital, biological studies 50-48-6, Amitriptyline  
 50-54-4, Quinidine sulfate 50-63-5, Chloroquine phosphate  
 50-78-2, Acetyl salicylic acid 54-11-5, Nicotine 54-85-3,

Isoniazid 55-48-1, Atropine sulfate 56-23-5, biological studies 56-75-7, Chloramphenicol 57-41-0, Phenytoin 58-08-2, Caffeine, biological studies 58-55-9, Theophylline, biological studies 58-89-9, Lindane 60-13-9, Amphetamine sulfate 62-76-0, Sodium oxalate 64-17-5, Ethanol, biological studies 67-56-1, Methanol, biological studies 67-63-0, Isopropyl alcohol, biological studies 67-66-3, Chloroform, biological studies 70-30-4, Hexachlorophene 71-55-6, 1,1,1-Trichloroethane 75-09-2, Dichloromethane, biological studies 78-67-1,  $\alpha, \alpha'$ -Azobis(isobutyronitrile) 81-81-2, Warfarin 84-74-2, Dibutyl phthalate 87-86-5, Pentachlorophenol 94-75-7, biological studies 103-90-2 106-46-7, 1,4-Dichlorobenzene 107-21-1, 1,2-Ethanediol, biological studies 108-95-2, Phenol, biological studies 110-67-8, 3-Methoxypropanenitrile 110-88-3, Trioxane, biological studies 111-76-2, 2-Butoxyethanol 112-49-2, Triethylene glycol dimethyl ether 115-96-8, Tris(2-chloroethyl)phosphate 121-75-5 123-91-1, 1,4-Dioxane, biological studies 127-19-5 130-61-0, Thioridazine hydrochloride 151-50-8, Potassium cyanide 152-11-4, Verapamil hydrochloride 318-98-9, Propranolol hydrochloride 341-69-5, Orphenadrine hydrochloride 439-14-5, Diazepam 469-62-5, Dextropropoxyphene 615-58-7, 2,4-Dibromophenol 632-22-4, Tetramethylurea 1327-53-3, Arsenic trioxide 1330-20-7, Xylene, biological studies 3112-85-4, Methyl phenyl sulfone 4320-85-8 4685-14-7, Paraquat 6970-56-5 7326-46-7, Tetrahydro-2-methyl-2-furanol 7446-18-6, Thallium sulfate 7447-40-7, Potassium chloride, biological studies 7487-94-7, Mercuric chloride, biological studies 7647-14-5, Sodium chloride (NaCl), biological studies 7681-49-4, Sodium fluoride, biological studies 7720-78-7, Ferrous sulfate 7758-98-7, Cupric sulfate, biological studies 10022-31-8, Barium nitrate 10377-48-7, Lithium sulfate 13423-22-8 20830-75-5, Digoxin 37306-44-8, Triazole 53778-61-3 54063-15-9 74498-88-7, 1-Methoxy-2-(methoxymethoxy)ethane (toxicity assessment of the samples from water environment using cultured mammalian cells)

L73 ANSWER 10 OF 12 HCA COPYRIGHT 2007 ACS on STN  
126:92052 Catalyst-containing solid **electrolytes** and batteries using these **electrolytes**.

Chaloner-Gill, Benjamin; Olsen, Ib I.; Saidi, Eileen S. (USA). U.S. US 5580680 A 19961203, 8 pp. (English). CODEN: USXXAM.  
APPLICATION: US 1994-267066 19940627.

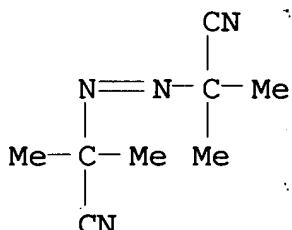
AB The **electrolytes** include a 1st catalyst that is capable of initiating the polymn. of solvent components at elevated temps. to increase the resistance (or impedance) of the solid **electrolyte** and thereby prevent thermal runaway and/or a 2nd catalyst that is capable of initiating the polymn. of flammable substances (e.g., olefins) in the solvent. To assure that the

catalysts do not prematurely initiate polymn. below a certain temp., the catalysts may be microencapsulated within a heat-sensitive material that disintegrates or dissolve at a predetd. elevated temp. to release the catalysts. Microencapsulation permits the controlled release of the catalysts into the **electrolyte** under the appropriate conditions.

IT 78-67-1, Azobisisobutyronitrile 94-36-0, Benzoyl peroxide, uses 110-22-5, Acetyl peroxide (polymn. catalyst for **battery** solid **electrolytes**)

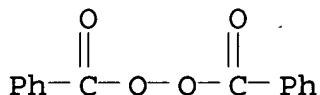
RN 78-67-1 HCA

CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



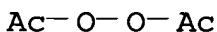
RN 94-36-0 HCA

CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



RN 110-22-5 HCA

CN Peroxide, diacetyl (9CI) (CA INDEX NAME)

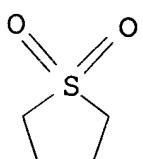


IT 126-33-0, Sulfolane

(polymn. catalyst for **battery** solid **electrolytes** contg. solvent of)

RN 126-33-0 HCA

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



IC ICM H01M006-16  
INCL 429192000  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 37  
ST battery solid electrolyte solvent polymn  
catalyst; flammable substance polymn catalyst **battery**  
**electrolyte**; safety **battery** polymn catalyst  
**electrolyte**  
IT Polymerization catalysts  
(Ziegler-Natta; for **battery** solid **electrolytes**  
)  
IT Polymerization catalysts  
(**battery** solid **electrolytes** contg.)  
IT **Battery electrolytes**  
(contg. polymn. catalyst)  
IT **Secondary batteries**  
(lithium; with polymn. catalysts for safety)  
IT Safety  
(of lithium **batteries** with polymn. catalysts-contg.  
solid **electrolytes**)  
IT Bronsted acids  
(polymn. catalyst for **battery** solid  
**electrolytes**)  
IT 78-67-1, Azobisisobutyronitrile 94-36-0, Benzoyl  
peroxide, uses 110-22-5, Acetyl peroxide 7440-23-5,  
Sodium, uses 7637-07-2, Boron trifluoride, uses  
(polymn. catalyst for **battery** solid  
**electrolytes**)  
IT 67-68-5, uses 96-48-0,  $\gamma$ -Butyrolactone 96-49-1, Ethylene  
carbonate 108-32-7, Propylene carbonate 110-71-4, Glyme  
111-96-6, Diglyme 112-49-2, Triglyme 126-33-0, Sulfolane  
143-24-8, Tetraglyme 646-06-0, Dioxolane  
(polymn. catalyst for **battery** solid  
**electrolytes** contg. solvent of)

L73 ANSWER 11 OF 12 HCA COPYRIGHT 2007 ACS on STN  
108:132762 Effect of some oxygen-containing compounds on transfer of  
ions through a film from an ionic copolymer. Chekmarev, P. M.;  
Tikhonov, E. N.; Luk'yanenko, N. G. (USSR). Zhurnal Prikladnoi  
Khimii (Sankt-Peterburg, Russian Federation), 60(12), 2736-8  
(Russian) 1987. CODEN: ZPKHAB. ISSN: 0044-4618.

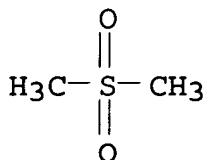
AB The ion transfer in **electrolysis** of NaCl through films of  
Na sulfonate group-contg. fluoropolymer ether ionomers modified with  
diethylene glycol di-Me ether (I), 18-Crown-6, amino  
group-terminated polyether, azo group-terminated  
polyether, perfluorinated polyether, polyethylene glycol (II), and  
Me<sub>2</sub>SO was studied. The modified films were used for sepg. the

cathodic and anodic spaces in the **electrolytic cell**. The highest current efficiency ( $\alpha \geq 90\%$ ) was attained for ionomer films modified with 18-Crown-6, I, and II, while the lowest  $\alpha$  was obsd. for films modified with perfluorinated polyethers. The pos. role of modifiers was due to the presence of unshared electron pairs in the O atom of the modifier mol. leading to an increase in  $\alpha$ .

IT 67-71-0, Dimethylsulfone  
(fluoropolymer ether ionomers modified with, ion transfer through)

RN 67-71-0 HCA

CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)



CC 37-6 (Plastics Manufacture and Processing)  
ST ion transfer fluoropolymer ether ionomer; **electrolysis**  
fluoropolymer ether ionomer film  
IT 67-71-0, Dimethylsulfone 68-12-2, uses and miscellaneous  
111-96-6 24194-62-5 25322-68-3  
(fluoropolymer ether ionomers modified with, ion transfer through)

L73 ANSWER 12 OF 12 HCA COPYRIGHT 2007 ACS on STN  
48:60269 Original Reference No. 48:10636d-g Reactions of N-containing compounds derived from benzotrifluoride. Cartwright, R. A.; Tatlow, J. C. (Univ. Birmingham, UK). Journal of the Chemical Society 1994-8 (Unavailable) 1953. CODEN: JCSOA9. ISSN: 0368-1769. OTHER SOURCES: CASREACT 48:60269.

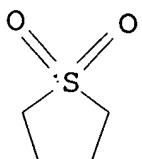
AB [R = F3C throughout in this abstr.] It appears that R substituents in aromatic nuclei hinder certain acid-catalyzed transformations such as the conversion of a diazoamino compd. to an aminoazo compd. and the benzidine transformation to the hydrazo deriv. 3-RC6H4NH2 was diazotized in the usual way and coupled with various reagents to give the expected **azo** compds. Self-coupling proceeded readily in the absence of excess mineral acid, giving 3-(3-RC6H4N:NNH)C6H4R (I) which could not be rearranged to the aminoazo compd. (3-RC6H4N:)2 was prep'd. by chem. and **electrolytic** reduction of 3-RC6H4NO2. The azoxy and hydrazo compds. were prep'd. by classical methods. Similar expts. were carried out with 2-RC6H4NO2. The new compds. prep'd. are: 4-(3-RC6H4N2)C6H4OH, yellow, m. 110-11°; x, 2-(3-RC6H4N2)C10H6OH, red, m. 165-6°; I, yellow, m.

117-18°; (3-RC<sub>6</sub>H<sub>4</sub>)<sub>2</sub>N<sub>2</sub>O, m. 47°; [2,4-R(RCON)C<sub>6</sub>H<sub>3</sub>]<sub>2</sub>, m. 209-10°; [2,4-R(H<sub>2</sub>N)C<sub>6</sub>H<sub>3</sub>]<sub>2</sub>, m. 180-2°; (2-RC<sub>6</sub>H<sub>4</sub>)<sub>2</sub>, b. 230°, m. 32°; (2-RC<sub>6</sub>H<sub>4</sub>N:)<sub>2</sub>, red, m. 126-8°; (2-RC<sub>6</sub>H<sub>4</sub>NH)<sub>2</sub>, colorless, m. 122-3°; x,2-(RC<sub>6</sub>H<sub>4</sub>N<sub>2</sub>)C<sub>10</sub>H<sub>6</sub>OH, red, m. 157-8°; [3,4-R(H<sub>2</sub>N)C<sub>6</sub>H<sub>3</sub>]<sub>2</sub>, m. 115°; [3,4-R(RCONH)C<sub>6</sub>H<sub>3</sub>]<sub>2</sub>, m. 201°.

IT 126-33-0P, Thiophene, tetrahydro-, 1,1-dioxide  
(prepn. of)

RN 126-33-0 HCA

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



CC 10 (Organic Chemistry)

IT 126-33-0P, Thiophene, tetrahydro-, 1,1-dioxide 317-74-8P,  
2-Naphthol, [α,α,α-trifluoro-m-tolylazo]-  
328-96-1P, Aniline, N,N-dimethyl-p-(α,α,α-  
trifluoro-m-tolylazo)- 341-58-2P, m-Tolidine,  
α,α,α,α',α',α'-hexafluoro-  
346-88-3P, o-Tolidine, α,α,α,α',α',.al  
pha.-hexafluoro- 351-36-0P, m-Aacetotoluidide,  
α,α,α-trifluoro- 370-36-5P, Phenol,  
p-(α,α,α-trifluoro-m-tolylazo)- 438-85-7P,  
4',4'''-Bi-m-acetotoluidide, α,α,α,α',.alpha  
.',α',2,2,2,2'',2'',2''-dodecafluoro- 441-27-0P, 2-Naphthol,  
[α,α,α-trifluoro-o-tolylazo]- 444-65-5P,  
4',4'''-Bi-o-acetotoluidide, α,α,α,α',.alpha  
.',α',2,2,2,2'',2'',2''-dodecafluoro- 444-95-1P, Hydrazine,  
1,2-bis(α,α,α-trifluoro-o-tolyl)- 457-07-8P,  
m,m'-Azoxytoluene, α,α,α,α',α',α  
'-hexafluoro- 567-15-7P, o,o'-Bitolyl,  
α,α,α,α',α'-hexafluoro-  
577-09-3P, o,o'-Azotoluene, α,α,α,α',α  
'-hexafluoro- 588-00-1P, m,m'-Azotoluene,  
α,α,α,α',α'-hexafluoro-  
6223-83-2P, 4-Fluorenecarboxylic acid, 9-oxo- 7639-94-3P,  
Triazene, 1,3-bis(α,α,α-trifluoro-m-tolyl)-  
(prepn. of)

=> D L75 1-13 CBIB ABS HITSTR HITIND

L75 ANSWER 1 OF 13 HCA COPYRIGHT 2007 ACS on STN

140:202430 Salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials. Armand, Michel; Michot, Christophe; Gauthier, Michel; Choquette, Yves (Hydro-Quebec, Can.; Centre National De La Recherche Scientifique (CNRS)). Eur. Pat. Appl. EP 1391952 A2 20040225, 33 pp. DESIGNATED STATES: R: DE, FR, GB, IT. (French). CODEN: EPXXDW. APPLICATION: EP 2003-292436 19971230. PRIORITY: CA 1996-2194127 19961230; CA 1997-2199231 19970305; EP 1997-403188 19971230.

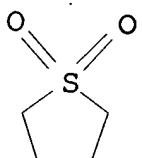
AB This invention describes ionic compds. where the anionic charge is delocalized. One compd. of the invention contains an anionic part assocd. with at least one mono- or multivalent cationic part  $Mm^+$ , in a no. sufficient to ensure electronic neutrality of the material. M can be a hydronium, nitrosyl  $NO_+$ , an ammonium  $NH_4^+$ , a metallic cation with valence m, an org. cation having a valence m, or an organometallic cation having valence m. The anionic charge is carried by a new pentacyclic moiety or deriv. of tetrapentalene carrying electroattractive substituents. The compds. are used notably for ionic conduction, electronic conductors, dyes and colorants, and catalysts for diverse chem. reactions. They can also be used as **electrolytes** in fuel cells and **batteries**.

IT 126-33-0D, Sulfolane, derivs.

(solvent for title compds.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

RN 126-33-0 HCA

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



IC ICM H01M006-16  
ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 27, 28, 29, 35, 76

ST pentacyclic tetrapentalene salt charge delocalized anion ionic conduction; alkali alk earth transition metal salt heterocyclic **electrolyte** polymer; **electrochem cell**  
fuel polyelectrolyte cond soly catalysis fluoropolymer polysiloxane

IT Optical absorption

(by polymer **electrolytes**; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Carbon black, uses

(composite electrodes with soft polymer or LiCoO<sub>2</sub> and polymer gel **electrolytes**, or with acetylene black, VO<sub>2</sub> and PEO; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Lithiation

(during **battery** operation; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Polyoxyalkylenes, processes

(**electrolyte** complexes with lithium salts, carbon blacks, (1,2,3-triazolium) ionic liqs., and other materials; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Open circuit potential

(of dye-sensitized solar cells with imidazolium-triazole-iodide **electrolytes**; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Ionic conductivity

(of lithium salts in polymer **electrolytes** and polymer gel **electrolytes**; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Cyclic voltammetry

(of **secondary battery cells** with polymer gel **electrolytes**; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Secondary batteries

(salts of pentacyclic or tetrapentalene derived anions for use in; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Aldol condensation catalysts

Antistatic agents

Coloring materials

Corrosion inhibitors

Dyes

Electron delocalization

Esterification

Friedel-Crafts reaction catalysts

Fuel cell separators

Heterojunction solar cells

Ionic liquids

Michael reaction catalysts

Plasticizers

Polyelectrolytes

Polymer **electrolytes**

Polymerization catalysts

Solubility

Substitution reaction, nucleophilic

Surfactants

(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 12036-21-4, Vanadium dioxide

(battery electrode composites with acetylene black and PEO; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 25322-68-3, Polyethylene oxide

(electrolyte complexes with lithium salts, carbon blacks, (1,2,3-triazolium) ionic liqs., and other materials; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 210289-62-6P

(electrolyte, ionic liq.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 7429-90-5, Aluminum, uses

(in electrochem. cells, and corrosion of; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate

(in gel polymer electrolyte; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 107-13-1, Acrylonitrile, reactions

(in gel polymer electrolyte; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 661461-54-7P

(pure and polymer electrolytes with polyethylene oxide; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 76-05-1, reactions 78-94-4, Methyl vinyl ketone, reactions

94-41-7 98-88-4, Benzoyl chloride 100-52-7, Benzaldehyde,

reactions 100-66-3, Anisole, reactions 102-52-3,

1,1,3,3-Tetramethoxypropane 106-20-7, Di-2-ethylhexylamine

108-24-7, Acetic anhydride 109-72-8, Butyllithium, reactions

110-61-2, Succinic dinitrile 112-76-5, Stearic acid chloride

121-44-8, Triethylamine, reactions 143-33-9, Sodium cyanide

144-55-8, Sodium bicarbonate, reactions 303-04-8,

2,3-Dichloro-Hexafluoro-2-butene 326-90-9, 4,4,4-Trifluoro-1-(2-furyl)-1,3-butanedione 326-91-0 375-72-4,

Perfluorobutanesulfonyl fluoride 407-38-5, 2,2,2-Trifluoroethyl trifluoroacetate 421-83-0, Trifluoromethanesulfonyl chloride

497-19-8, Sodium carbonate, reactions 538-75-0,

Dicyclohexylcarbodiimide 542-92-7, Cyclopentadiene, reactions

554-13-2, Lithium carbonate 584-08-7, Potassium carbonate

676-58-4, Methylmagnesium chloride 677-25-8, Ethenesulfonyl  
 fluoride 692-50-2 693-13-0, 1,3-Diisopropylcarbodiimide  
 764-93-2, 1-Decyne 765-12-8, Triethylene glycol divinyl ether  
 917-70-4, Lanthanum acetate 937-14-4, 3-  
**Chloroperoxybenzoic acid** 1000-84-6 1068-57-1,  
 Acetylhydrazide 1122-28-7, 4,5-Dicyanoimidazole 1310-58-3,  
 Potassium hydroxide, reactions 1522-22-1, Hexafluoroacetylacetone  
 1643-19-2, Tetrabutylammonium bromide 1648-99-3 2094-98-6,  
 1,1'-Azobis(cyclohexanecarbonitrile) 2582-30-1, 1-Aminoguanidine  
 bicarbonate 2633-67-2, 4-Styrenesulfonyl chloride 2638-94-0,  
 4,4'-Azobis(4-cyanovaleric acid) 2893-78-9, Dichloroisocyanuric  
 acid, sodium salt 3804-23-7, Scandium acetate 4546-95-6,  
 1,2,3-Triazole-4,5-dicarboxylic acid 7447-41-8, Lithium chloride,  
 reactions 7647-01-0, Hydrochloric acid, reactions 7647-14-5,  
 Sodium chloride, reactions 7664-39-3, Hydrofluoric acid, reactions  
 7757-82-6, Sodium sulfate, reactions 7758-09-0, Potassium nitrite  
 7782-50-5, Chlorine, reactions 7789-23-3, Potassium fluoride  
 9002-92-0, Brij 30 13360-57-1 13637-84-8, Chlorosulfonyl  
 fluoride 13781-67-4, 2-(3-*Thienyl*)ethanol 14635-75-7,  
 Nitrosonium tetrafluoroborate 16090-14-5 17455-13-9, 18-Crown-6  
 17587-22-3, 1,1,1,2,2,3,3-Heptafluoro-7,7-dimethyl-4,6-octanedione  
 20583-66-8, 1,1,1,5,5,6,6,7,7,7-Decafluoro-2,4-Heptanedione  
 26628-22-8, Sodium azide 27070-49-1, 1,2,3-Triazole 31469-15-5,  
 1-Methoxy-1-(trimethylsilyloxy)-2-methyl-1-propene 39262-22-1  
 39377-49-6, Copper cyanide 53188-07-1, Trolox 56512-49-3,  
 4-(Dimethylamino)azobenzene-4'-sulfonyl chloride 65039-09-0,  
 1-Ethyl-3-methyl-1H-imidazolium chloride 66051-48-7 77968-17-3  
 81850-46-6 81850-47-7 89183-45-9, Polyaniline hydrochloride  
 210049-00-6 210289-26-2 210289-55-7 210469-93-5 661461-58-1  
 661461-61-6

(salts of pentacyclic or tetrapentalene derived anions, and their  
 uses as ionic conductive materials)

IT **126-33-0D**, Sulfolane, derivs.

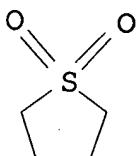
(solvent for title compds.; salts of pentacyclic or  
 tetrapentalene derived anions, and their uses as ionic conductive  
 materials)

L75 ANSWER 2 OF 13 HCA COPYRIGHT 2007 ACS on STN

138:312868 **Electrolytic** capacitor. Yoshioka, Toshichika  
 (Nippon Chemi-Con Corp., Japan). Jpn. Kokai Tokkyo Koho JP  
2003109880 A 20030411, 5 pp. (Japanese). CODEN: JKXXAF.  
 APPLICATION: JP 2001-304366 20010928.

AB An **electrolytic** capacitor suitable for high-temp.  
 application comprises wound anode and cathode foils impregnated with  
 an **electrolyte** of a sulfolane-based solvent and a  
 butyl-rubber sealing material of a **peroxide**-vulcanized  
 isoprene-isobutylene-divinylbenzene copolymer. Specifically, the  
 cathode foil may comprise an Al foil having a surface film of TiN,

IT Zr nitride, Ta nitride, Nb nitride, Ti, Zr, Ta, or Nb.  
 126-33-0, Sulfolane  
 (sulfolane **electrolytic** and butyl-rubber sealing  
 material of **electrolytic** capacitor)  
 RN 126-33-0 HCA  
 CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



IC ICM H01G009-10  
 ICS C23C030-00; H01G009-035; H01G009-04; C22C021-00  
 CC 76-10 (Electric Phenomena)  
 ST **electrolytic** capacitor sulfolane **electrolyte**  
 butyl rubber sealing material  
 IT Synthetic rubber, uses  
 (divinylbenzene-isobutylene-isoprene; sulfolane  
**electrolytic** and butyl-rubber sealing material of  
**electrolytic** capacitor)  
 IT Cathodes  
**Electrolytic** capacitors  
 Foils  
 (sulfolane **electrolytic** and butyl-rubber sealing  
 material of **electrolytic** capacitor)  
 IT Butyl rubber, uses  
 (sulfolane **electrolytic** and butyl-rubber sealing  
 material of **electrolytic** capacitor)  
 IT **Electrolytes**  
 (sulfolane-based solvent; sulfolane **electrolytic** and  
 butyl-rubber sealing material of **electrolytic**  
 capacitor)  
 IT 9010-85-9  
 (butyl rubber, sulfolane **electrolytic** and butyl-rubber  
 sealing material of **electrolytic** capacitor)  
 IT 126-33-0, Sulfolane 7429-90-5, Aluminum, uses 7440-03-1,  
 Niobium, uses 7440-25-7, Tantalum, uses 7440-32-6, Titanium,  
 uses 7440-67-7, Zirconium, uses 12033-62-4, Tantalum nitride  
 12648-34-9, Niobium nitride 25583-20-4, Titanium nitride (TiN)  
 25658-42-8, Zirconium nitride  
 (sulfolane **electrolytic** and butyl-rubber sealing  
 material of **electrolytic** capacitor)

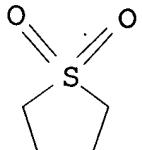
electrode materials and having long service life at high temperature and their **electrolytic** capacitors. Matsuura, Hiroyuki; Tsubaki, Yuichiro; Shimamoto, Hideki (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002217068 A 20020802, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-8494 20010117.

AB The **electrolytes** contain (A) sulfolane-nonprotonic polar solvent blends, (B) solutes comprising phthalic acid as an anionic component and amine salts or amidine salts as cationic components, preferably selected from tertiary amine salts, alkyl-substituted amidine group-contg. compds., and/or quaternary ammonium salts of alkyl-substituted amine group-contg. compds. which may be imidazoles, benzimidazoles, and/or alicyclic amidine compds. (pyrimidines, imidazolines), and (C) ammonium hypochlorite. The **electrolytic** capacitors employ the **electrolytes** and sealings of butyl rubber cured with **peroxides** and/or resins and having hardness  $\geq 75$  RHD at least on a part.

IT 126-33-0, Sulfolane  
(sulfolane-nonprotonic polar solvent blends; **electrolytes** for **electrolytic** capacitors with suppressed degrdn. of electrode materials and long service life at high temp.)

RN 126-33-0 HCA

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



IC ICM H01G009-035  
ICS H01G009-10

CC 76-10 (Electric Phenomena)

ST **electrolyte** sulfolane polar solvent blend; phthalic acid anion amine salt cation **electrolyte**; ammonium hypochlorite **electrolytic** capacitor **electrolyte**; amidine salt cation phthalic acid anion **electrolyte**;  
**electrolytic** capacitor **electrolyte** soln phthalic acid

IT Butyl rubber, uses  
(cured, capacitor sealing; **electrolytes** for **electrolytic** capacitors with suppressed degrdn. of electrode materials and long service life at high temp.)

IT **Electrolytic** capacitors  
**Electrolytic** solutions  
(**electrolytes** for **electrolytic** capacitors with suppressed degrdn. of electrode materials and long service

- life at high temp.)
- IT 9010-85-9 (butyl rubber, cured, capacitor sealing; **electrolytes** for **electrolytic** capacitors with suppressed degrdn. of electrode materials and long service life at high temp.)
- IT 13932-00-8, Ammonium hypochlorite (electrolytes for **electrolytic** capacitors with suppressed degrdn. of electrode materials and long service life at high temp.)
- IT 88-99-3D, Phthalic acid, amine salts or amidine salts 123155-79-3 167552-54-7, uses (solute; **electrolytes** for **electrolytic** capacitors with suppressed degrdn. of electrode materials and long service life at high temp.)
- IT 96-48-0,  $\gamma$ -Butyrolactone 126-33-0, Sulfolane (sulfolane-nonprotonic polar solvent blends; **electrolytes** for **electrolytic** capacitors with suppressed degrdn. of electrode materials and long service life at high temp.)

L75 ANSWER 4 OF 13 HCA COPYRIGHT 2007 ACS on STN

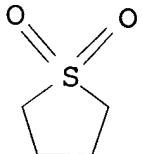
134:353703 Method for manufacture of electrically conductive poly(6-nitroindole). Kaneko, Shinako; Nishiyama, Toshihiko; Fujiwara, Masaki; Harada, Manabu; Kurosaki, Masato; Nakagawa, Yuji (NEC Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2001131266 A 20010515, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-319326 19991110.

AB The polymer is manufd. by dissolving 6-nitroindoline (I) with a support **electrolyte** or an oxidant (e.g., **peroxide**) in a solvent, then **electrolytically** or chem. polymg. the I.

IT 126-33-0, Sulfolane (polymn. solvent; method for manuf. of elec. conductive poly(6-nitroindole))

RN 126-33-0 HCA

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



- IC ICM C08G061-12  
ICS C25B003-00; H01B001-12
- CC 35-7 (Chemistry of Synthetic High Polymers)
- ST polynitroindole elec conductive polymer manuf; **electrolytical** polymn polynitroindole manuf; oxidative

polymn nitroindoline polynitroindole manuf; electrochem polymer  
nitroindoline polynitroindole manuf

- IT Peroxides, uses  
(polymn. catalyst; method for manuf. of elec. conductive  
poly(6-nitroindole))
- IT Salts, uses  
(support electrolytes; method for manuf. of elec.  
conductive poly(6-nitroindole))
- IT 7722-84-1, Hydrogen peroxide, uses  
(method for manuf. of elec. conductive poly(6-nitroindole))
- IT 64-17-5, Ethanol, uses 67-56-1, Methanol, uses 67-63-0,  
2-Propanol, uses 67-64-1, Acetone, uses 68-12-2, DMF, uses  
75-05-8, Acetonitrile, uses 75-52-5, Nitromethane, uses 96-48-0,  
 $\gamma$ -Butyrolactone 96-49-1, Ethylene carbonate 107-13-1,  
Acrylonitrile, uses 108-32-7, Propylene carbonate 126-33-0  
, Sulfolane  
(polymn. solvent; method for manuf. of elec. conductive  
poly(6-nitroindole))

L75 ANSWER 5 OF 13 HCA COPYRIGHT 2007 ACS on STN

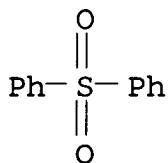
132:32585 Biomimetic oxidation of diphenyl sulfide with electrochemical  
P-450 model system in CH<sub>2</sub>Cl<sub>2</sub> treated with alkaline solution.  
Michida, Takashi; Osawa, Eriko; Yamaoka, Yumiko (Fac. Pharmaceutical  
Sci., Kobe-Gakuin Univ., Ikawadani-cho, Nishi-ku, Kobe, 651-2180,  
Japan). Yakugaku Zasshi, 119(10), 780-785 (Japanese) 1999  
. CODEN: YKKZAJ. ISSN: 0031-6903. Publisher: Pharmaceutical  
Society of Japan.

AB Dichloromethane contg. metalloporphyrins [meso-  
tetraphenylporphyrinatomanganese(III) chloride (I) or  
meso-tetraphenylporphyrinatoiron(III) chloride (II)] and Bu<sub>4</sub>NClO<sub>4</sub>  
was treated with an aq. soln. of NaOH (5%), and subjected to  
controlled potential electrolysis at -1.00 (vs. S.C.E.  
(SCE)) in a divided cell after addn. of di-Ph sulfide (III). Di-Ph  
sulfoxide (IV) and di-Ph sulfone (V) were found in an  
electrolyzed soln. as the reaction products. Results  
obtained from cyclic voltammetry and visible spectrometry suggested  
that the treatment of dichloromethane contg. metalloporphyrins with  
the aq. soln. of NaOH did not change the fifth ligand of  
metalloporphyrins from Cl to OH. On the electrode, dissolved  
dioxygen was reduced to hydrogen peroxide. Compds. I and  
II catalyze the oxidn. of III by hydrogen peroxide without  
imidazole. Compd. II showed higher selectivity than compd. I.

IT 127-63-9P, Diphenyl sulfone  
(biomimetic oxidn. of di-Ph sulfide with electrochem. P 450 model  
system in CH<sub>2</sub>Cl<sub>2</sub> treated with alk. soln.)

RN 127-63-9 HCA

CN Benzene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



CC 7-4 (Enzymes)

IT 127-63-9P, Diphenyl sulfone 945-51-7P, Diphenyl sulfoxide  
(biomimetic oxidn. of di-Ph sulfide with electrochem. P 450 model system in CH<sub>2</sub>Cl<sub>2</sub> treated with alk. soln.)

L75 ANSWER 6 OF 13 HCA COPYRIGHT 2007 ACS on STN

128:23638 Acrylic polyurethane solid **electrolyte**-formable compositions and manufacture of solid **electrolytes** from them. Takiyama, Eiichiro; Matsui, Fumio; Morita, Katsuhisa; Takino, Sachiko; Ogiwara, Kazushige; Takahashi, Kentaro (Showa Highpolymer Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09278972 A 19971028 Heisei, 8 pp. (Japanese). CODEN: JKXXAF.

APPLICATION: JP 1996-88529 19960410.

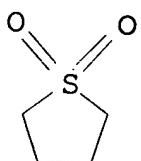
AB The compns. contain (A) monomers having (meth)acryloyl groups and acetoacetoxy groups in a mol., (B) unsatd. polyurethanes obtained by reaction of polyester polyols with unsatd. isocyanates, (C) Li compds., and (D) solvents which can dissolve the Li compds. The **electrolytes** are manufd. by polymn. of the above compns., which may be previously partially polymd. to control the viscosity, in a die. The compns. are useful for manuf. of film **batteries**. Thus, a compn. contg. AAEM (acetoacetoxyethyl methacrylate) 100, an unsatd. polyurethane (obtained by reaction of a polyester polyol from di-Et malonate and ethylene glycol with isocyanatoethyl methacrylate) 15, propylene carbonate 215, LiBF<sub>4</sub> 33, and benzoyl **peroxide** 2 parts was casted between 2 Pt electrode plate and polymd. at 80-100° for 2 h under N flow to give a soft gelatin-like polymer film with elec. cond. 2.7 + 10<sup>-4</sup> S/cm.

IT 126-33-0, Sulfolane

(solvent; manuf. of solid **electrolytes** from acrylic polyurethanes compns. contg. acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

RN 126-33-0 HCA

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



IC ICM C08L033-14  
 ICS C08K003-24; C08L075-14; H01B001-06; H01M006-18; H01M010-40  
 CC 37-6 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 52  
 ST acrylic polyester polyurethane solid **electrolyte** lithium;  
 cast polymn acrylic polyester polyurethane **electrolyte**;  
 acetoacetoxyethyl acrylate polyurethane polyester lithium  
**electrolyte**; methacrylate acetoacetoxyethyl polyester  
 polyurethane lithium **electrolyte**  
 IT Polymerization  
 (casting; manuf. of solid **electrolytes** from acrylic  
 polyurethanes compns. contg. acetoacetoxyethyl (meth)acrylate,  
 unsatd. polyurethanes, and Li compds.)  
 IT **Battery electrolytes**  
 (manuf. of solid **electrolytes** from acrylic  
 polyurethanes compns. contg. acetoacetoxyethyl (meth)acrylate,  
 unsatd. polyurethanes, and Li compds.)  
 IT Polyurethanes, preparation  
 (polyester-, acrylic; manuf. of solid **electrolytes** from  
 acrylic polyurethanes compns. contg. acetoacetoxyethyl  
 (meth)acrylate, unsatd. polyurethanes, and Li compds.)  
 IT Polyelectrolytes  
 (solid; manuf. of solid **electrolytes** from acrylic  
 polyurethanes compns. contg. acetoacetoxyethyl (meth)acrylate,  
 unsatd. polyurethanes, and Li compds.)  
 IT 199115-94-1P 199297-26-2P  
 (manuf. of solid **electrolytes** from acrylic  
 polyurethanes compns. contg. acetoacetoxyethyl (meth)acrylate,  
 unsatd. polyurethanes, and Li compds.)  
 IT 7791-03-9, Lithium perchlorate 14024-11-4, Lithium  
 tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate  
 21324-40-3, Lithium hexafluorophosphate 33454-82-9, Lithium  
 trifluoromethanesulfonate  
 (manuf. of solid **electrolytes** from acrylic  
 polyurethanes compns. contg. acetoacetoxyethyl (meth)acrylate,  
 unsatd. polyurethanes, and Li compds.)  
 IT 75-05-8, Acetonitrile, uses 96-48-0,  $\gamma$ -Butyrolactone  
 108-32-7, Propylene carbonate 110-71-4, 1,2-Dimethoxyethane  
 126-33-0, Sulfolane  
 (solvent; manuf. of solid **electrolytes** from acrylic  
 polyurethanes compns. contg. acetoacetoxyethyl (meth)acrylate,  
 unsatd. polyurethanes, and Li compds.)

L75 ANSWER 7 OF 13 HCA COPYRIGHT 2007 ACS on STN  
 128:13756 Acrylic polyurethane solid **electrolyte**-formable  
 compositions and manufacture of solid **electrolytes** using  
 them. Takiyama, Eiichiro; Matsui, Fumio; Morita, Katsuhisa; Takino,

Yukiko; Ogiwara, Kazushige; Takahashi, Kentaro (Showa Highpolymer Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09278971 A 19971028 Heisei, 8 pp. (Japanese). CODEN: JKXXAF.

APPLICATION: JP 1996-88528 19960410.

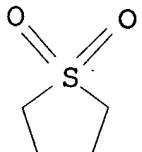
AB The compns. contain (A) monomers having (meth)acryloyl groups and acetoacetoxy groups in a mol., (B) unsatd. polyurethanes obtained by reaction of (meth)acryloyl- and OH-having unsatd. polyesters with isocyanates, (C) Li compds., and (D) solvents which can dissolve the Li compds. The **electrolytes** are manufd. by polymn. of the above compns., which may be previously partially polymd. to control the viscosity, in a die. The compns. are useful for manuf. of film **batteries**. Thus, a compn. contg. AAEM (acetoacetoxyethyl methacrylate) 100, an unsatd. polyurethane [obtained by reaction of Placcel FM 5 with MOI (isocyanatoethyl methacrylate)] 15, propylene carbonate 185, LiBF<sub>4</sub> 30, and benzoyl **peroxide** 2 parts was casted between 2 Pt electrode plate and polymd. at 80-100° for 2 h under N flow to give a soft gelatin-like polymer film with elec. cond. 2.1 + 10<sup>-4</sup> S/cm.

IT 126-33-0, Sulfolane

(solvent; manuf. of solid **electrolytes** from acrylic polyurethanes compns. contg. acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

RN 126-33-0 HCA

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



IC ICM C08L033-14

ICS C08K003-24; C08L075-14; H01B001-06; H01M006-18; H01M010-40

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 52

ST acrylic polyurethane solid **electrolyte** lithium salt; cast polymn acrylic polyurethane solid **electrolyte**; acetoacetoxyethyl acrylate polyurethane lithium salt **electrolyte**; methacrylate acetoacetoxyethyl polyurethane lithium salt **electrolyte**

IT Polyurethanes, preparation

(acrylic; manuf. of solid **electrolytes** from acrylic polyurethanes compns. contg. acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

IT Polymerization

(casting; manuf. of solid **electrolytes** from acrylic polyurethanes compns. contg. acetoacetoxyethyl (meth)acrylate,

unsatd. polyurethanes, and Li compds.)

IT **Battery electrolytes**

(manuf. of solid **electrolytes** from acrylic polyurethanes compns. contg. acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

IT **Polyurethanes, preparation**

(polyoxyalkylene-, acrylic; manuf. of solid **electrolytes** from acrylic polyurethanes compns. contg. acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

IT **Polyelectrolytes**

(solid; manuf. of solid **electrolytes** from acrylic polyurethanes compns. contg. acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

IT 198956-70-6P, 198956-71-7P

(manuf. of solid **electrolytes** from acrylic polyurethanes compns. contg. acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

IT 7791-03-9, Lithium perchlorate 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 33454-82-9, Lithium trifluoromethanesulfonate

(manuf. of solid **electrolytes** from acrylic polyurethanes compns. contg. acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

IT 75-05-8, Acetonitrile, uses 96-48-0,  $\gamma$ -Butyrolactone

108-32-7, Propylene carbonate 110-71-4, 1,2-Dimethoxyethane

126-33-0, Sulfolane

(solvent; manuf. of solid **electrolytes** from acrylic polyurethanes compns. contg. acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

L75 ANSWER 8 OF 13 HCA COPYRIGHT 2007 ACS on STN

123:106294 Oxidation of sulfides with electrocatalytic P-450 model system. Michida, Takashi; Kasuya, Yukako; Nishiyama, Michiko; Sayo, Hiroteru (Fac. Pharmaceutical Sciences, Kobe-Gakuin Univ., Kobe, 651-21, Japan). Chemical & Pharmaceutical Bulletin, 42(9), 1724-9 (English) 1994. CODEN: CPBTAL. ISSN: 0009-2363.

Publisher: Pharmaceutical Society of Japan.

AB Controlled potential **electrolysis** (CPE) of meso-tetraphenylporphyrinatomanganese (III) chloride (I) (1 mM) at -0.4 V (vs. SCE) in acetonitrile contg. di-Ph sulfide (II) (100 mM), 1-methylimidazole (5 mM), and tetrabutylammonium perchlorate (0.1 M) as supporting **electrolyte** with a reticulated vitreous carbon (RVC) cathode and bubbling O<sub>2</sub> gas, gave diphenylsulfoxide (III) (12.6%-16.4%) and diphenylsulfone (IV) (0.5%-1.5%) in the presence of acetic acid/or tetramethylammonium hydroxide (V). In the absence of acetic acid or V, compd. II was not oxidized. The results of cyclic voltammetry and CPE at -0.4 V (vs. SCE) showed

that the oxidant of II was an oxo-manganese (V) species which was generated from I and dissolved dioxygen by two-electron transfer and that the presence of H<sup>+</sup> was essential not only to cleave the O-O bond in the peroxomanganese species, but also to transfer the second electron. This catalytic cycle is similar to that of cytochrome P 450. The current efficiency was 79.1%. CPE of dissolved O<sub>2</sub> was carried out at -1.0 V in acetonitrile and **superoxide** ion was detected by use of an ESR spectrometer in the frozen **electrolyzed** soln. Addn. of potassium **superoxide** to acetonitrile contg. I, 1-methylimidazole and II gave III (15.6%-26.7%) and IV (0%-2.7%) in the presence of acetic acid or V. A similar procedure in the absence of the acid of V did not give III or IV. When the applied potential was -1.0 V, **superoxide** ion generated by cathodic redn. of dissolved oxygen in the **electrolytic** soln. contg. acetic acid was converted into hydrogen **peroxide** by the reaction with protons. The reaction of manganese (III) porphyrin with hydrogen **peroxide** produced an oxo-manganese (V) species, which is a strong oxidant and oxidized II and III. This mechanism is similar to the shunt mechanism in the cytochrome P 450 catalytic cycle.

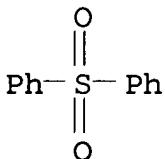
IT 127-63-9, Diphenylsulfone 640-57-3

3112-85-4

(oxidn. of sulfides with electrocatalytic cytochrome P 450 model system)

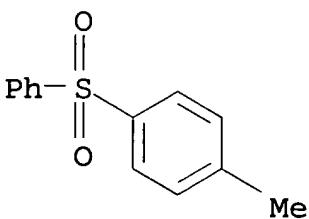
RN 127-63-9 HCA

CN Benzene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



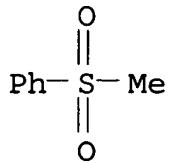
RN 640-57-3 HCA

CN Benzene, 1-methyl-4-(phenylsulfonyl)- (CA INDEX NAME)



RN 3112-85-4 HCA

CN Benzene, (methylsulfonyl)- (CA INDEX NAME)



CC 7-4 (Enzymes)

Section cross-reference(s): 6

IT 127-63-9, Diphenylsulfone 640-57-3 945-51-7,  
Diphenylsulfoxide 948-56-1 1193-82-4 3112-85-4  
(oxidn. of sulfides with electrocatalytic cytochrome P 450 model system)IT 7722-84-1, Hydrogen **peroxide**, reactions 11062-77-4,  
**Superoxide**  
(oxidn. of sulfides with electrocatalytic cytochrome P 450 model system)

L75 ANSWER 9 OF 13 HCA COPYRIGHT 2007 ACS on STN

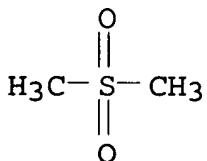
110:123741 Mechanism of iron corrosion in hydrogen **peroxide**  
solutions in dimethyl sulfoxide-water mixtures.. Agladze, T. R.;  
Malysheva, T. G.; Denisova, O. O. (Gruz. Politekh. Inst., Tbilisi,  
USSR). Zashchita Metallov, 25(1), 29-35 (Russian) 1989.  
CODEN: ZAMEA9. ISSN: 0044-1856.AB The activation of the passive Fe in DMSO-H<sub>2</sub>O mixt. contg. H<sub>2</sub>O<sub>2</sub> was  
obsd. during the long contact with the medium. The effect was  
studied of the acidification of the near-metal part of  
**electrolyte** and formation of the aggressive products of  
decompn. of org. radicals formed in the DMSO oxidn. in agreement  
with the chain mechanism. The neutral and stabilizing compds. can  
be used to slow down the corrosion rate. The compds. had to be  
traps for radical particles.

IT 67-71-0

(iron corrosion in aq. soln. contg. hydrogen **peroxide**  
and dimethylsulfoxide and)

RN 67-71-0 HCA

CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)



CC 72-6 (Electrochemistry)

Section cross-reference(s): 55

ST passive iron activation DMSO water mixt; hydrogen **peroxide**

- IT iron corrosion; DMSO oxidn product radical iron corrosion
- IT **Electrolytic polarization**  
(of iron, in aq. soln. contg. di-Me sulfoxide and hydrogen peroxide, corrosion in relation to)
- IT 7722-84-1, Hydrogen peroxide, reactions  
(corrosion by aq. di-Me sulfoxide and, of iron)
- IT 67-68-5, Dimethyl sulfoxide, reactions  
(corrosion by hydrogen peroxide and aq., of iron)
- IT 7439-89-6, Iron, reactions  
(corrosion of, in di-Me sulfoxide-water soln. contg. hydrogen peroxide)
- IT 75-75-2, Methanesulfonic acid 624-92-0, Dimethyldisulfide  
(iron corrosion in aq. soln. contg. hydrogen peroxide and di-Me sulfoxide and)
- IT 99-35-4, 1,3,5-Trinitrobenzene 2564-83-2 11129-12-7, Borate  
(iron corrosion in aq. soln. contg. hydrogen peroxide and di-Me sulfoxide in)
- IT **67-71-0**  
(iron corrosion in aq. soln. contg. hydrogen peroxide and dimethylsulfoxide and)

L75 ANSWER 10 OF 13 HCA COPYRIGHT 2007 ACS on STN

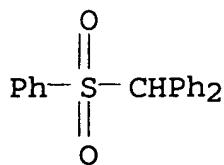
100:138373 Electrogenerated bases. VI. Reaction of electrogenerated superoxide with some carbon acids. II. Sugawara, M.; Baizer, M. M.; Monte, W. T.; Little, R. D.; Hess, U. (Dep. Chem., Univ. California, Santa Barbara, CA, 93106, USA). Acta Chemica Scandinavica, Series B: Organic Chemistry and Biochemistry, B37(6), 509-17 (English) 1983. CODEN: ACBOCV. ISSN: 0302-4369.

AB Electrogenerated O<sub>2</sub>- and mol. O reacted sequentially with a no. of esters, nitriles, N,N-dialkylamides, sulfones and aliph. nitro compds. The  $\alpha$ -Me groups in these compds. bore aliph. and/or arom. substituents. When the electron-withdrawing group (EWG) of these C acids could be displaced intact, good-to-excellent yields of the corresponding carbonyl compds. were obtained. The efficiency of the transformation depended upon the nature of the substituents:  
 $\alpha,\alpha$ -di-Ph >  $\alpha$ -methyl- $\alpha$ -Ph >  
 $\alpha,\alpha$ -di-Me. Conducting the **electrolysis** in the presence of Ac<sub>2</sub>O showed that the known conversion of PhCH<sub>2</sub>CN to BzOH did indeed proceed via PhCHO. When the EWG itself could be cleaved, this methodol. produced  $\alpha$ -hydroxylated compds. and products resulting from fragmentation of the EWG and also from its complete displacement. The effects of the  $\alpha$ -substituents were similar to those above.

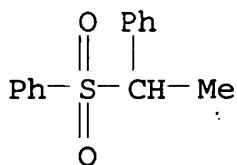
IT **5433-76-1 24422-78-4**  
(reaction of, with electrogenerated superoxide ion)

RN 5433-76-1 HCA

CN Benzene, 1,1'-(phenylsulfonyl)methylene]bis- (9CI) (CA INDEX NAME)



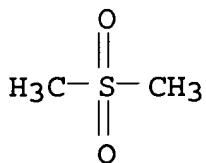
RN 24422-78-4 HCA  
 CN Benzene, [(1-phenylethyl)sulfonyl]- (CA INDEX NAME)



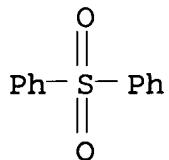
CC 22-7 (Physical Organic Chemistry)  
 Section cross-reference(s): 72  
 ST **superoxide** electrogenerated reaction carbon acid;  
 deprotonation carbon acid **superoxide**; ketone; ester  
 hydroxy; nitrile reaction electrogenerated **superoxide**;  
 nitro compd reaction **superoxide**  
 IT Ketones, preparation  
 (prepn. of, by reaction of nitriles with electrogenerated  
**superoxide** ion)  
 IT Carboxylic acids, preparation  
 (prepn. of, by reactions of nitriles with electrogenerated  
**superoxide** ion)  
 IT Esters, reactions  
 Nitriles, reactions  
 Nitro compounds  
 Sulfones  
 (reaction of, with electrogenerated **superoxide** ion)  
 IT Amides, reactions  
 (N,N-diethyl-, reaction with electrogenerated **superoxide**  
 ion)  
 IT Acids, reactions  
 (carbon, reaction of, with electrogenerated **superoxide**  
 ion)  
 IT Protonation and Proton transfer reaction  
 (deprotonation, of carbon acids with electrogenerated  
**superoxide** ion)  
 IT Esters, preparation  
 (hydroxy, prepn. of, by reaction of esters with electrogenerated  
**superoxide** ion)  
 IT 141-28-6  
 (attempted reaction of, with electrogenerated **superoxide**)

- ion)
- IT 109-89-7P, preparation 124-38-9P, preparation 10049-90-8P  
13922-28-6P  
(prepn. of, by reaction of diethylamide with **superoxide**  
ion)
- IT 50-21-5P, preparation 76-89-1P 97-64-3P 119-61-9P, preparation  
594-61-6P  
(prepn. of, by reaction of ester with electrogenerated  
**superoxide** ion)
- IT 64-18-6P, preparation 64-19-7P, preparation 65-85-0P,  
preparation 67-64-1P, preparation 98-86-2P, preparation  
624-83-9P 628-51-3P 827-16-7P 947-94-4P 6284-75-9P  
(prepn. of, by reaction of nitrile with electrogenerated  
**superoxide** ion)
- IT 109-52-4P, preparation 124-19-6P 2384-50-1P  
(prepn. of, by reaction of nitro compd. with electrogenerated  
**superoxide** ion)
- IT 25512-62-3P  
(prepn. of, by reaction of nitrocyclohexene with electrogenerated  
**superoxide** ion)
- IT 75-05-8, reactions 78-82-0 86-29-3 105-37-3 107-12-0  
108-64-5 123-25-1 140-29-4 547-63-7 628-05-7 1823-91-2  
2216-21-9 2431-96-1 2562-37-0 3004-58-8 3469-00-9  
**5433-76-1 24422-78-4** 33931-44-1 88019-07-2  
89333-26-6 89333-27-7  
(reaction of, with electrogenerated **superoxide** ion)

- L75 ANSWER 11 OF 13 HCA COPYRIGHT 2007 ACS on STN  
79:12947 Electrochemical manufacture of sulfoxides and sulfones.  
Desmarquest, Jean Pierre (Institut Francais du Petrole, des  
Carburants et Lubrifiants). Fr. FR 2129028 **19721201**, 12  
pp. (French). CODEN: FRXXAK. APPLICATION: FR 1971-8596 19710311.
- AB **Electrolysis** of a soln. of an org. sulfide or sulfoxide  
between electrodes in the presence of gaseous or dissolved O gave  
the sulfoxide or sulfone by oxidn. at the cathode and also by direct  
reaction of the org. sulfoxide with **peroxide** generated at  
the anode. At 2.8-3 V in MeCN contg. Et4NClO4 and bubbled with O,  
Ph2S was converted to Ph2SO. Similarly, in 1:1 HOAc/H2O contg.  
NaClO4, Me2S gave Me2SO.
- IT **67-71-0P**  
(prepn. of, from methyl sulfide, by **electrolysis** in  
presence of oxygen)
- RN 67-71-0 HCA
- CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)



IT 127-63-9P  
 (prepn. of, from phenyl sulfide, by **electrolysis** in  
 presence of oxygen)  
 RN 127-63-9 HCA  
 CN Benzene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)

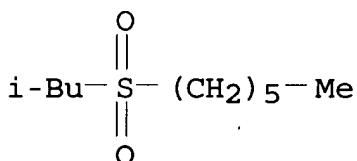


IC C07C; C07B  
 CC 77-8 (Electrochemistry)  
 ST electrochem manuf sulfoxide sulfone; sulfide org  
**electrolysis**  
 IT 67-68-5P, preparation  
 (from methyl sulfide, by **electrolysis** in presence of  
 oxygen)  
 IT 67-71-0P  
 (prepn. of, from methyl sulfide, by **electrolysis** in  
 presence of oxygen)  
 IT 127-63-9P 945-51-7P  
 (prepn. of, from phenyl sulfide, by **electrolysis** in  
 presence of oxygen)

L75 ANSWER 12 OF 13 HCA COPYRIGHT 2007 ACS on STN  
 48:25121 Original Reference No. 48:4581c-f Tertiary alkyl  
**peroxides**. (N. V. de Bataafsche Petroleum Maatschappij). GB  
 688937 19530318 (Unavailable). APPLICATION: GB .  
 AB A continuous process produces tert-alkyl **peroxides** by  
**electrolytic** synthesis of a **peroxy** acid and  
 reaction with a tertiary alkylating agent. The latter is a tertiary  
 alc., tert-alkyl ester of a mineral acid, or a mixt. of an olefin  
 and an acid which will produce either of these.  
**Electrolytic cells** contg. bright Pt anodes and  
 Alundum diaphragms to sep. the anolyte and catholyte chambers are  
 arranged in cascade. The **electrolyte**, a 50% aq. H<sub>2</sub>SO<sub>4</sub>  
 soln. contg. about 0.05% HCl, is passed continuously through the

anolyte compartments, residing 1-2 min. in each. The av. cell potential is 12 v., the c.d. 100 amp./sq. dm. anode surface, and the current concn. 750 amp./l. anolyte. A soln. contg. about 21% **peroxysulfuric acid**, 29% H<sub>2</sub>SO<sub>4</sub>, and 50% water is produced, mixed continuously with 90% H<sub>2</sub>SO<sub>4</sub>, and passed into a stream of Me<sub>3</sub>COH at 75°; after 20 min. residence, the org. layer, contg. more than 99% (Me<sub>3</sub>C)<sub>2</sub>O<sub>2</sub>, is sepd., dried, and neutralized. The **tert-alkyl peroxides** are useful as polymn. catalysts, Diesel fuel additives, and coupling or alkylating agents.

IT 873408-04-9P, Sulfone, hexyl isobutyl  
(prepn. of)  
RN 873408-04-9 HCA  
CN Sulfone, hexyl isobutyl (5CI) (CA INDEX NAME)



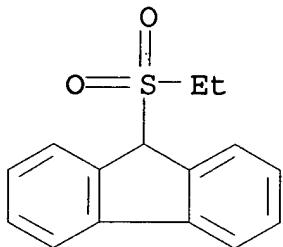
CC 10 (Organic Chemistry)  
IT **Alkylation**  
(of **peroxy** acids with tertiary alkylating agents,  
tert-alkyl **peroxides** by)  
IT **Peroxy acids**  
(reactions of, with tertiary alkylating agents, tert-alkyl  
**peroxides** by)  
IT **Peroxides**  
(tert-alkyl)  
IT 110-05-4P, **tert-Butyl peroxide**  
(manuf. of)  
IT 640279-07-8P, **Sulfide, hexyl isobutyl** 708255-15-6P, **2-Hexanol**,  
1-(isobutylthio)- 873408-04-9P, **Sulfone, hexyl isobutyl**  
(prepn. of)

L75 ANSWER 13 OF 13 HCA COPYRIGHT 2007 ACS on STN  
47:54945 Original Reference No. 47:9342f-g Bis(methylsulfonyl)  
**peroxide**. Jones, Giffin D.; Friedrich, Ralph E. (Dow  
Chemical Co.). US 2619507 19521125 (Unavailable).

APPLICATION: US .

AB **Electrolysis** between shiny Pt electrodes of 40 ml. of a 10.2N soln. of MeSO<sub>3</sub>H at 11°, with a c.d. of 0.2 amp./sq. cm. for 7 hrs. gave 1.06 g. of bis(methylsulfonyl) **peroxide**, (MeSO<sub>2</sub>)<sub>2</sub>O<sub>2</sub>, a water-insol. white powder, m. 77°, decomp. 85°. The **peroxide** was a more active catalyst for low-temp. polymerization of CH<sub>2</sub>:CCl<sub>2</sub> or CH<sub>2</sub>:CHCl than other **peroxides** previously employed.

IT 60147-56-0P, Fluorene, 9-(ethylsulfonyl)-  
(prepn. of)  
RN 60147-56-0 HCA  
CN 9H-Fluorene, 9-(ethylsulfonyl)- (9CI) (CA INDEX NAME)



CC 10 (Organic Chemistry)  
IT Catalysts  
(in polymerization, of vinyl chloride and vinylidene chloride,  
bis(methylsulfonyl) **peroxide** as)  
IT Polymerization  
(of vinyl and vinylidene chlorides, bis(methylsulfonyl)  
**peroxide** as catalyst in)  
IT 75-01-4, Ethylene, chloro- 75-35-4, Ethylene, 1,1-dichloro-  
(polymerization of, with bis(methylsulfonyl) **peroxide**  
catalyst)  
IT 1001-62-3P, **Peroxide**, bis(methylsulfonyl) 4237-48-3P,  
Methanethiol, diphenyl- 13957-55-6P, Propylamine,  
N,N,1-trimethyl-3,3-diphenyl- 19552-08-0P, 9-Fluorenethiol  
22173-83-7P, Propylamine, N,N,1-trimethyl-3,3-diphenyl-,  
hydrochloride 38793-65-6P, Sulfide, diphenylmethyl propyl  
38793-69-0P, Sulfide, cyclopentyl diphenylmethyl 54160-29-1P,  
Piperidine, 1-[3-(ethylsulfonyl)-3,3-diphenylpropyl]-  
**60147-56-0P**, Fluorene, 9-(ethylsulfonyl)- 60282-85-1P,  
Pseudourea, 2-diphenylmethyl-2-thio-, hydrochloride 102321-34-6P,  
Propylamine, 3-(ethylsulfonyl)-N,N-dimethyl-3,3-diphenyl-,  
hydrochloride 102759-39-7P, Propylamine, N,N-diethyl-3-  
(ethylsulfonyl)-3,3-diphenyl-, hydrochloride 806599-03-1P,  
Propylamine, N,N-diethyl-3-(ethylsulfonyl)-3,3-diphenyl-  
857523-01-4P, Piperidine, 1-[2-[9-(ethylsulfonyl)-9-fluorenyl]ethyl]-  
872825-90-6P, Piperidine, 1-[3-(methylsulfonyl)-3,3-  
diphenylpropyl]- 872825-92-8P, Piperidine, 1-[3-(isobutylsulfonyl)-  
3,3-diphenylpropyl]- 872825-93-9P, Propylamine,  
3-(isopropylsulfonyl)-N,N,1-trimethyl-3,3-diphenyl- 873375-53-2P,  
Propylamine, N,N,1-trimethyl-3-(methylsulfonyl)-3,3-diphenyl-  
873397-00-3P, Propylamine, 3-(cyclopentylsulfonyl)-N,N,1-trimethyl-  
3,3-diphenyl- 873397-01-4P, Propylamine, 3-(cyclohexylsulfonyl)-  
N,N,1-trimethyl-3,3-diphenyl- 873397-12-7P, Propylamine,  
N,N,1-trimethyl-3,3-diphenyl-3-(propylsulfonyl)- 873406-19-0P,

Piperidine, 1-[4-(ethylsulfonyl)-4,4-diphenylbutyl]-  
(prepn. of)

=> D L70 1-8 CBIB ABS HITSTR HITIND

L70 ANSWER 1 OF 8 HCA COPYRIGHT 2007 ACS on STN

146:145946 **Electrolyte** for lithium secondary **battery**

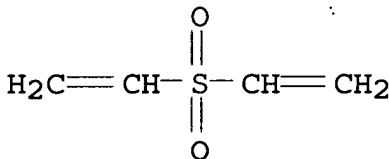
Kim, Cheonsoo (Samsung Sdi Co., Ltd., S. Korea). U.S. Pat. Appl. Publ. US 2007009806 A1 20070111, 11pp. (English). CODEN: USXXCO. APPLICATION: US 2006-481911 20060707. PRIORITY: KR 2005-61409 20050707.

AB The invention concerns an **electrolyte** for a lithium secondary **battery** and a lithium secondary **battery** having the **electrolyte**, the **electrolyte** including a lithium salt; a non-aq. org. solvent including  $\gamma$ -butyrolactone-; and a succinic anhydride.

IT 77-77-0, Divinyl sulfone  
(**electrolyte** for lithium secondary **battery**)

RN 77-77-0 HCA

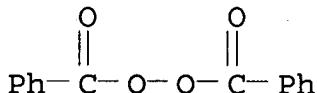
CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



IT 94-36-0, Dibenzoyl peroxide, reactions 105-64-6, Di-isopropyl peroxydicarbonate 105-74-8, Dilauroyl peroxide 3006-82-4, tert-Butylperoxy-2-ethyl hexanoate 15520-11-3, Bis(4-tert-butylcyclohexyl) peroxydicarbonate (**electrolyte** for lithium secondary **battery**)

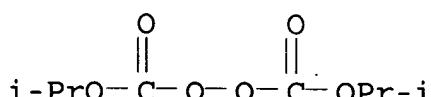
RN 94-36-0 HCA

CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



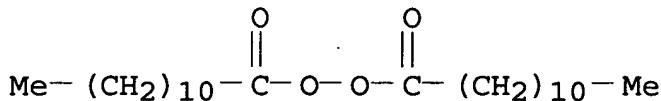
RN 105-64-6 HCA

CN Peroxydicarbonic acid, bis(1-methylethyl) ester (9CI) (CA INDEX NAME)



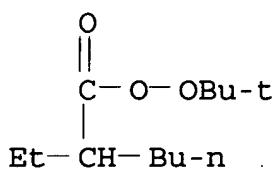
RN 105-74-8 HCA

CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



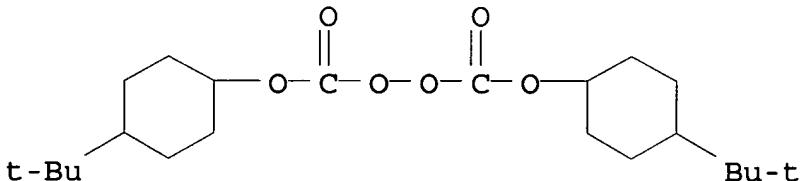
RN 3006-82-4 HCA

CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



RN 15520-11-3 HCA

CN Peroxydicarbonic acid, bis[4-(1,1-dimethylethyl)cyclohexyl] ester (9CI) (CA INDEX NAME)



INCL 429329000; 429332000; 429200000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST electrolyte lithium secondary battery

IT Battery electrolytes  
(electrolyte for lithium secondary battery)

IT Aromatic hydrocarbons, uses

Esters, uses

Ethers, uses

Ketones, uses

(electrolyte for lithium secondary battery)

IT Secondary batteries  
(lithium; electrolyte for lithium secondary battery)

IT 77-77-0, Divinyl sulfone 96-48-0,  $\gamma$ -Butyrolactone  
108-30-5, Succinic anhydride, uses 872-36-6, Vinylene carbonate  
3741-38-6, Ethylene sulfite 25721-76-0, Poly(ethylene  
glycol)dimethacrylate 26570-48-9, Poly(ethylene glycol)diacrylate  
49717-87-5, uses 919110-87-5

## (electrolyte for lithium secondary battery)

IT 94-36-0, Dibenzoyl peroxide, reactions 105-64-6,  
 Di-isopropyl peroxydicarbonate 105-74-8, Dilauroyl  
 peroxide 107-71-1, tert-Butyl peroxy acetate 109-13-7,  
 tert-Butyl peroxy isobutyrate 110-22-5, Diacetyl peroxide  
 614-45-9, tert-Butyl peroxy benzoate 686-31-7, tert-Amylperoxy  
 2-ethyl hexanoate 927-07-1, tert-Butyl peroxy pivalate 2372-21-6,  
 tert-Butyl peroxy isopropyl carbonate 3006-82-4,  
 tert-Butylperoxy-2-ethyl hexanoate 3851-87-4, Bis(3,5,5-  
 trimethylhexanoyl) peroxide 13122-18-4 15518-51-1, Diethylene  
 glycol bis(tert-butyl peroxydicarbonate) 15520-11-3,  
 Bis(4-tert-butylcyclohexyl) peroxydicarbonate 16111-62-9,  
 Di-2-ethylhexyl peroxy dicarbonate 26748-38-9, tert-Butyl peroxy  
 neoheptanoate 29240-17-3, tert-Amyl peroxy pivalate 34443-12-4,  
 tert-Butyl peroxy-2-ethylhexyl carbonate 36536-42-2 51938-28-4,  
 tert-Hexyl peroxy pivalate 52238-68-3 68860-54-8 919110-90-0

## (electrolyte for lithium secondary battery)

IT 71-43-2, Benzene, uses 78-67-1, 2,2'-Azo-bis(isobutyronitrile)  
 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate  
 108-32-7, Propylene carbonate 108-67-8, Mesitylene, uses  
 108-86-1, Bromobenzene, uses 108-88-3, Toluene, uses 108-90-7,  
 Chlorobenzene, uses 462-06-6, Fluorobenzene 463-79-6D, Carbonic  
 acid, ester 616-38-6, Dimethyl carbonate 623-53-0, EthylMethyl  
 carbonate 623-96-1, Dipropyl carbonate 1330-20-7, Xylene, uses  
 2094-98-6 4419-11-8, 2,2'-Azo-bis(2,4-dimethyl valeronitrile)  
 4437-70-1, 2,3-Butylene carbonate 4437-85-8, 1,2-Butylene  
 carbonate 4437-86-9 7447-41-8, Lithium chloride, uses  
 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide  
 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium  
 tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate  
 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium  
 hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7,  
 Ethylpropyl carbonate 37220-89-6, Aluminum lithium oxide  
 56525-42-9, Methylpropyl carbonate 89489-56-5, 1,2-Pentylene  
 carbonate 90076-65-6 114435-02-8, Fluoroethylene carbonate  
 131651-65-5

## (electrolyte for lithium secondary battery)

L70 ANSWER 2 OF 8 HCA COPYRIGHT 2007 ACS on STN

142:264348 **Electrolyte** for rechargeable lithium

**battery.** Lee, Yong-Beom; Song, Eui-Hwan; Kim, Kwang-Sup;  
 Earmme, Tae-Shik; Kim, You-Mee (Samsung SDI Co., Ltd., S. Korea).  
 Eur. Pat. Appl. EP 1508934 A1 20050223, 32 pp. DESIGNATED STATES:  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR.  
 (English). CODEN: EPXXDW. APPLICATION: EP 2004-90320 20040819.

PRIORITY: KR 2003-57716 20030820; KR 2004-5874 20040129.

AB Disclosed is an **electrolyte** for a rechargeable lithium

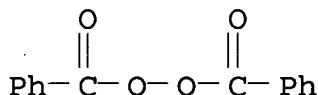
**battery**, including a mixt. of org. solvents including a cyclic solvent and a nitrile-based solvent represented by the formula R-C.tplbond.N (R is from C1-10 aliph. hydrocarbons, C1-10 halogenated aliph. hydrocarbons, C6-10 arom. hydrocarbons, and C6-10 halogenated arom. hydrocarbons) and a lithium salt.

IT 94-36-0, Dibenzoyl peroxide, processes 105-74-8, Dilauroyl peroxide 3006-82-4, tert-Butyl peroxy-2-ethyl hexanoate 15520-11-3, Di(4-tert-butylcyclohexyl)peroxydicarbonate 26748-41-4, tert-Butyl peroxy neodecanoate

(electrolyte for rechargeable lithium **battery**)

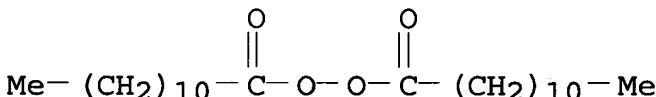
RN 94-36-0 HCA

CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



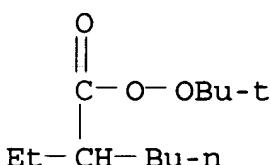
RN 105-74-8 HCA

CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



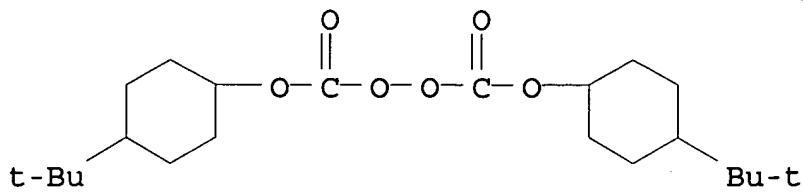
RN 3006-82-4 HCA

CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



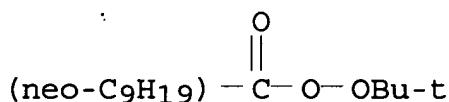
RN 15520-11-3 HCA

CN Peroxydicarbonic acid, bis[4-(1,1-dimethylethyl)cyclohexyl] ester (9CI) (CA INDEX NAME)



RN 26748-41-4 HCA

CN Neodecaneperoxoic acid, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



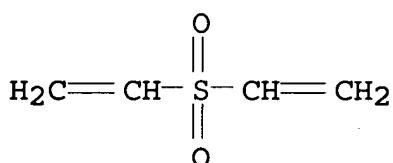
IT 77-77-0, DiVinyl sulfone 105-64-6,

Di-isopropylperoxydicarbonate

(electrolyte for rechargeable lithium **battery**)

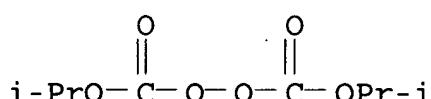
RN 77-77-0 HCA

CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



RN 105-64-6 HCA

CN Peroxydicarbonic acid, bis(1-methylethyl) ester (9CI) (CA INDEX NAME)



IC ICM H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 38ST **electrolyte** rechargeable lithium **battery**

IT Nitriles, uses

(aliph., C1-10; **electrolyte** for rechargeable lithium **battery**)

- IT Nitriles, uses  
(arom., C6-10; **electrolyte** for rechargeable lithium **battery**)
- IT **Battery electrolytes**  
(**electrolyte** for rechargeable lithium **battery**)
- IT Lactones  
(**electrolyte** for rechargeable lithium **battery**)
- IT Secondary **batteries**  
(lithium; **electrolyte** for rechargeable lithium **battery**)
- IT Peroxides, uses  
(org.; **electrolyte** for rechargeable lithium **battery**)
- IT 94-36-0, Dibenzoyl peroxide, processes 105-74-8,  
Dilauroyl peroxide 107-71-1, tert-Butylperoxy acetate 109-13-7,  
tert-Butylperoxyisobutyrate 110-22-5, Diacetyl peroxide  
614-45-9, tert-Butylperoxy benzoate 686-31-7, tert-Amylperoxy  
2-ethylhexanoate 927-07-1, tert-Butyl peroxy pivalate, 2372-21-6,  
tert-Butyl peroxy isopropyl carbonate 3006-82-4,  
tert-Butyl peroxy-2-ethyl hexanoate 3851-87-4,  
Bis(3,5,5-trimethyl)hexanoyl peroxide 4419-11-8,  
2,2'-Azobis(2,4-dimethylvaleronitrile) 13122-18-4,  
tert-Butylperoxy 3,5,5-trimethylhexanoate 15518-51-1, Diethylene  
glycol bis(tert-butyldiethoxycarbonate) 15520-11-3,  
Di(4-tert-butylcyclohexyl)peroxydicarbonate 25551-14-8  
26748-38-9, tert-Butyl peroxy neoheptanoate 26748-41-4,  
tert-Butyl peroxy neodecanoate 29240-17-3, tert-Amyl  
peroxy pivalate 34443-12-4, tert-Butyl peroxy 2-ethylhexyl  
carbonate 36536-42-2, 1,6-Hexanediol bis(tert-butyl  
peroxy carbonato) 51240-95-0, 1,1,3,3-Tetramethylbutyl peroxy  
neodecanoate 51938-28-4, tert-Hexylperoxy pivalate 52238-68-3,  
Bis(3-methoxybutyl) peroxydicarbonate 68860-54-8 96989-15-0  
845717-44-4  
(**electrolyte** for rechargeable lithium **battery**)
- IT 79-20-9, Methyl acetate 96-48-0,  $\gamma$ -Butyrolactone 96-49-1,  
Ethylene carbonate 105-58-8, Diethyl carbonate 106-70-7, Methyl  
hexanoate 107-12-0, Propionitrile 107-31-3, Methyl formate  
108-29-2,  $\gamma$ -Valerolactone 108-32-7, Propylene carbonate  
109-74-0, Butyronitrile 110-59-8, Valeronitrile 124-12-9,  
Caprylonitrile 140-29-4, Phenylacetonitrile 141-78-6, Ethyl  
acetate, uses 326-62-5, 2-FluoroPhenylacetonitrile 394-47-8,  
2-Fluorobenzonitrile 459-22-3, 4-FluoroPhenylacetonitrile  
502-44-3,  $\epsilon$ -Caprolactone 542-28-9,  $\delta$ -Valerolactone  
542-52-9, Dibutyl carbonate 616-38-6, Dimethyl carbonate  
623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate

629-08-3, Heptanenitrile 630-18-2, tert-Butyl cyanide 695-06-7,  
 $\gamma$ -Caprolactone 766-05-2, Cyclohexanecarbonitrile  
1194-02-1, 4-Fluorobenzonitrile 4254-02-8,  
Cyclopentanecarbonitrile 4437-85-8, Butylene carbonate  
7439-93-2D, Lithium, salt 7791-03-9, Lithium perchlorate  
12190-79-3, Cobalt lithium oxide (CoLiO<sub>2</sub>) 14024-11-4, Lithium  
tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate  
18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium  
hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate  
33454-82-9, Lithium triflate 57381-51-8, 4-Chloro-2-fluoro-  
benzonitrile 60702-69-4, 2-Chloro-4-fluoro-benzonitrile  
90076-65-6 90240-74-7 127813-79-0 132843-44-8 179802-95-0,  
Cobalt lithium manganese nickel oxide (Co<sub>0.1</sub>LiMn<sub>0.1</sub>Ni<sub>0.8</sub>O<sub>2</sub>)  
845717-45-5

(electrolyte for rechargeable lithium **battery**)

)

IT 75-05-8, Acetonitrile, uses 77-77-0, DiVinyl sulfone  
105-64-6, Di-isopropylperoxydicarbonate 628-73-9,  
Capronitrile 872-36-6, Vinylene carbonate 3741-38-6, Ethylene  
sulfite 16111-62-9, Bis(2-ethylhexyl) peroxydicarbonate  
22537-94-6 71331-99-2, Bis(4-tert-butylcyclohexyl)peroxycarbonate  
114435-02-8, Fluoroethylene carbonate  
(electrolyte for rechargeable lithium **battery**)

)

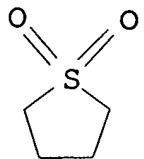
L70 ANSWER 3 OF 8 HCA COPYRIGHT 2007 ACS on STN

140:256340 Anodes for lithium **battery**. Kim, Yong-tae; Choi,  
Su-suk; Choi, Yun-suk; Lee, Kyoung-hee (Samsung Sdi Co., Ltd., S.  
Korea). U.S. Pat. Appl. Publ. US 2004058232 A1 20040325, 10 pp.  
(English). CODEN: USXXCO. APPLICATION: US 2003-664157 20030917.  
PRIORITY: KR 2002-57577 20020923.

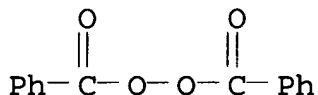
AB A lithium neg. electrode for a lithium **battery** has good  
cycle life and capacity characteristics. The lithium neg. electrode  
comprises a lithium metal layer and a protective layer present on  
the lithium metal layer, where the protective layer includes an  
organosulfur compd. An organosulfur compd. having a thiol terminal  
group is preferred since such a compd. can form a complex with  
lithium metal to enable coating to be carried out easily. The  
organosulfur compd. has a large no. of S or N elements having high  
electronegativity to form a complex with lithium ions, so it renders  
lithium ions to be deposited relatively evenly on the lithium metal  
surface, reducing dendrite formation.

IT 126-33-0, Sulfolane  
(anodes for lithium **battery**)

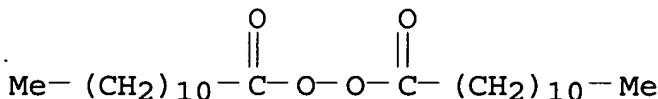
RN 126-33-0 HCA  
CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



IT 94-36-0, Dibenzoyl peroxide, uses 105-74-8,  
 Dilauroyl peroxide  
 (anodes for lithium **battery**)  
 RN 94-36-0 HCA  
 CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



RN 105-74-8 HCA  
 CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



IC ICM H01M002-16  
 ICS H01M004-66; H01M004-40  
 INCL 429137000; 429246000; 429245000; 429212000; 429231950  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 38  
 ST anode lithium **battery**  
 IT Chalcogenides  
 Oxides (inorganic), uses  
 (Li-contg.; anodes for lithium **battery**)  
 IT Peroxides, uses  
 (acyl; anodes for lithium **battery**)  
 IT Hydroperoxides  
 (alkyl, tertiary; anodes for lithium **battery**)  
 IT Peroxides, uses  
 (alkyl; anodes for lithium **battery**)  
 IT **Battery** anodes  
 Coating materials  
 Conducting polymers  
 (anodes for lithium **battery**)  
 IT Acrylic polymers, uses  
 Polyanilines

Polyoxyalkylenes, uses  
 (anodes for lithium **battery**)

IT Amino acids, uses  
 Halogens  
 Lewis acids  
 Rare earth chlorides  
 Sulfonic acids, uses  
 Transition metal compounds  
 (dopant; anodes for lithium **battery**)

IT Primary batteries  
 Secondary batteries  
 (lithium; anodes for lithium **battery**)

IT Esters, uses  
 Ketals  
 (peroxy; anodes for lithium **battery**)

IT Crown ethers  
 Polybenzimidazoles  
 Polyquinolines  
 Polyquinoxalines  
 (thiophenes, polymers; anodes for lithium **battery**)

IT 110-71-4 111-96-6, Diglyme 126-33-0, Sulfolane  
 646-06-0, 1,3-Dioxolane 7439-93-2, Lithium, uses 7704-34-9,  
 Sulfur, uses  
 (anodes for lithium **battery**)

IT 67-63-0, Isopropyl alcohol, uses 75-91-2, tert-Butyl hydroperoxide  
 78-63-7, 2,5-Dimethyl-2,5-di-(tert-butylperoxy)hexane 78-67-1,  
 Azobisisobutyronitrile 80-15-9, Cumene hydroperoxide 80-43-3,  
 Dicumyl peroxide 94-36-0, Dibenzoyl peroxide, uses  
 105-74-8, Dilauroyl peroxide 110-05-4, Di-tert-butyl  
 peroxide 123-23-9, Succinic acid peroxide 762-12-9, Didecanoyl  
 peroxide 927-07-1, tert-Butylperoxypivalate 2167-23-9,  
 2,2-Di-(tert-butylperoxy)butane 3025-88-5, 2.5-Dihydroperoxy-2,5-  
 dimethylhexane 4511-39-1, tert-Amylperoxybenzoate 15667-10-4,  
 1,1-Di-(tert-amylperoxy)cyclohexane 16066-38-9, Di(n-propyl)peroxy  
 dicarbonate 16111-62-9, Di(2-ethylhexyl)peroxy dicarbonate  
 19910-65-7, Di(sec-butyl)peroxy dicarbonate 24937-05-1,  
 Poly(ethyleneadipate) 24938-43-0, Poly( $\beta$ -propiolactone)  
 24969-06-0, Polyepichlorohydrin 25190-62-9, Poly(p-phenylene)  
 25233-30-1, Polyaniline 25233-30-1D, Polyaniline, sulfonated  
 25233-34-5, Polythiophene 25233-34-5D, Polythiophene, derivs.  
 25322-68-3, Peo 25322-69-4, Polypropylene oxide 25667-11-2,  
 Poly(ethylenesuccinate) 25721-76-0, Polyethylene glycol  
 dimethacrylate 25852-49-7, Polypropylene glycol dimethacrylate  
 26570-48-9, Poly(ethylene glycol diacrylate) 26748-47-0,  
 $\alpha$ -Cumylperoxyneodecanoate 34099-48-4, Peroxydicarbonate  
 52496-08-9, Poly(propyleneglycoldiacrylate) 55794-20-2, Ethyl  
 3,3-di-(tert-butylperoxy)butyrate 95732-35-7 97332-10-0,  
 Poly(N-propylaziridine) 139096-57-4, Isoquinoline homopolymer

172973-34-1

(anodes for lithium **battery**)

IT 865-44-1, Iodine trichloride 1493-13-6, Triflic acid 7446-11-9, Sulfur trioxide, uses 7550-45-0, Titanium chloride (TiCl<sub>4</sub>) (T-4)-, uses 7553-56-2, Iodine, uses 7601-90-3, Perchloric acid, uses 7637-07-2, uses 7647-01-0, Hydrochloric acid, uses 7647-19-0, Phosphorus pentafluoride 7664-39-3, Hydrofluoric acid, uses 7664-93-9, Sulfuric acid, uses 7697-37-2, Nitric acid, uses 7705-08-0, Ferric chloride, uses 7721-01-9, Tantalum chloride (TaCl<sub>5</sub>) 7726-95-6, Bromine, uses 7782-44-7, Oxygen, uses 7782-50-5, Chlorine, uses 7783-68-8, Niobium fluoride nbf5 7783-70-2, Antimony pentafluoride 7783-81-5 7783-82-6 7783-93-9, Silver perchlorate 7784-36-3, Arsenic pentafluoride 7789-21-1, Fluorosulfonic acid 7789-33-5, Iodine monobromide 7790-94-5, Chlorosulfonic acid 7790-99-0, Iodine monochloride 10026-11-6 10026-12-7, Niobium chloride (NbCl<sub>5</sub>) 10277-43-7, Lanthanum nitrate hexahydrate 10294-33-4, Boron tribromide 10294-34-5 13283-01-7 13499-05-3 13709-32-5, Bis(fluorosulfonyl)peroxide 13774-85-1 13819-84-6, Molybdenum fluoride mof5 13870-10-5, Iron chloride oxide feocl 13873-84-2, Iodine monofluoride 14635-75-7, Nitrosyl tetrafluoroborate 14797-73-0, Perchlorate 14874-70-5, Tetrafluoroborate 16871-80-0, Nitrosyl hexachloroantimonate 16887-00-6, Chloride, uses 16919-18-9, Hexafluorophosphate 16941-92-7, Hexachloroiridic acid 16973-45-8, Hexafluoroarsenate 17111-95-4 17856-92-7 20461-54-5, Iodide, uses 24959-67-9, Bromide, uses 25321-43-1, Octylbenzenesulfonic acid 27176-87-0, Dodecylbenzene sulfonic acid

(dopant; anodes for lithium **battery**)

IT 540-63-6, 1,2-Ethanedithiol 1072-71-5, 2,5-Dimercapto-1,3,4-thiadiazole 2001-93-6, 2,4-Dimercaptopyrimidine 2150-02-9, Bis(2-mercaptoethyl)ether 3570-55-6, Bis(2-mercaptoethyl)sulfide 9002-98-6 9002-98-6D, derivs. 37306-44-8D, Triazole, mercapto derivs 131538-50-6 135886-78-1 135886-79-2

(protective coating; anodes for lithium **battery**)

IT 7704-34-9D, Sulfur, organosulfur compd.

(protective layer; anodes for lithium **battery**)

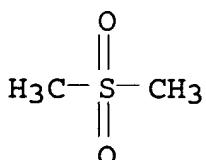
IT 273-77-8, 1,2,3-Benzothiadiazole 612-79-3, 6,6'-Biquinoline 25013-01-8, Polypyridine 25013-01-8D, Polypyridine, derivs. 26856-35-9, Dihydrophenanthrene 27986-50-1, Poly(1,3-cyclohexadiene) 30604-81-0, Polypyrrole 30604-81-0D, Polypyrrole, derivs. 51937-67-8, Polyferrocene 71730-08-0, Polyanthraquinone 136902-52-8, 2,2'-Bipyridine homopolymer 136902-52-8D, 2,2'-Bipyridine homopolymer, derivs. 190201-51-5, Pyrimidine homopolymer 190201-57-1, 1,5-Naphthyridine homopolymer (thiophenes, polymers; anodes for lithium **battery**)

140:238483 **Electrolyte for a lithium battery.** Park, Yong-Chul; Jung, Won-Ii; Kim, Geun-Bae; Cho, Jae-Phil; Jung, Cheol-Soo (S. Korea). U.S. Pat. Appl. Publ. US 2004048163 A1 20040311, 13 pp. (English). CODEN: USXXCO. APPLICATION: US 2003-656086 20030905. PRIORITY: KR 2002-53879 20020906.

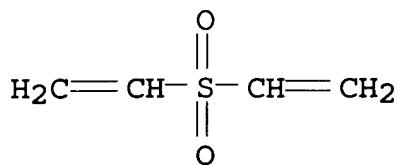
AB An **electrolyte** for a lithium **battery** includes a nonaq. org. solvent, a lithium salt, and an additive comprising (a) a sulfone-based compd. and (b) a C3-30 org. peroxide or azo-based compd. The **electrolyte** may further include a poly(ester) (meth)acrylate or a polymer that is derived from a (polyester)polyol with at least three hydroxyl (-OH) groups, where a portion or all of the hydroxyl groups are substituted with a (meth)acrylic ester and the remaining hydroxyl groups that are not substituted with the (meth)acrylic ester are substituted with a group having no radical reactivity. The lithium **battery** comprising the **electrolyte** of the present invention has a significantly improved charge-discharge and cycle life characteristics, recovery capacity ratio at high temp., and swelling inhibition properties.

IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone  
 94-36-0, Benzoyl peroxide, uses 105-64-6,  
 Diisopropyl peroxy dicarbonate 105-74-8, Lauroyl peroxide  
 126-33-0, Tetramethylene sulfone 127-63-9, Phenyl  
 sulfone 620-32-6, Benzyl sulfone 1561-49-5,  
 Dicyclohexylperoxy dicarbonate 1712-87-4, m-Toluoyl  
 peroxide 3006-82-4, tert-Butylperoxy-2-ethyl hexanoate  
 14666-78-5 15520-11-3, Bis(4-tert-  
 butylcyclohexyl)peroxy dicarbonate 26748-41-4  
 32752-09-3, Isobutyl peroxide 92177-99-6,  
 3,3,5-Trimethylhexanoyl peroxide  
 (**electrolyte for lithium battery**)

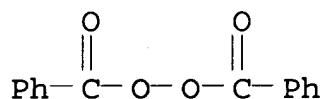
RN 67-71-0 HCA  
 CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)



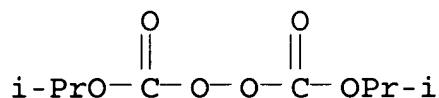
RN 77-77-0 HCA  
 CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



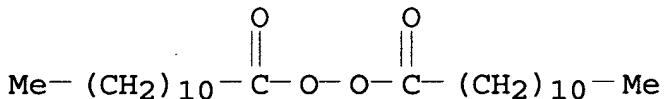
RN 94-36-0 HCA  
 CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



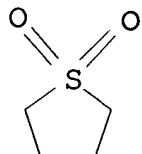
RN 105-64-6 HCA  
 CN Peroxydicarbonic acid, bis(1-methylethyl) ester (9CI) (CA INDEX NAME)



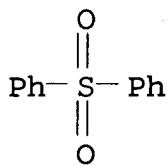
RN 105-74-8 HCA  
 CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



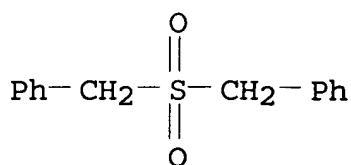
RN 126-33-0 HCA  
 CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



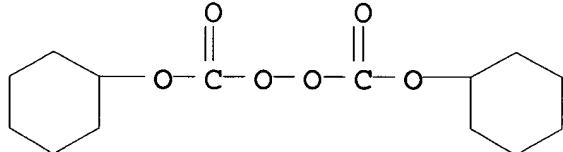
RN 127-63-9 HCA  
 CN Benzene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



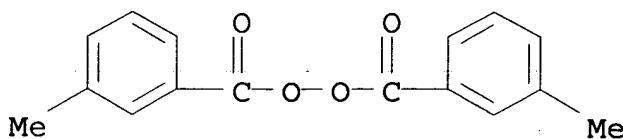
RN 620-32-6 HCA  
 CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (9CI) (CA INDEX NAME)



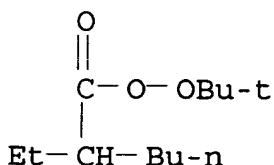
RN 1561-49-5 HCA  
 CN Peroxydicarbonic acid, dicyclohexyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 1712-87-4 HCA  
 CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)

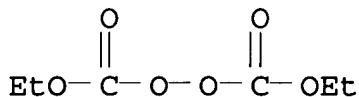


RN 3006-82-4 HCA  
 CN Hexaneperoxyic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



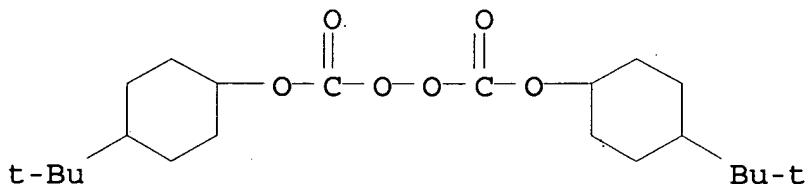
RN 14666-78-5 HCA

CN Peroxydicarbonic acid, diethyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



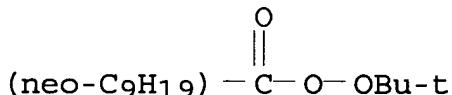
RN 15520-11-3 HCA

CN Peroxydicarbonic acid, bis[4-(1,1-dimethylethyl)cyclohexyl] ester (9CI) (CA INDEX NAME)



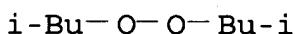
RN 26748-41-4 HCA

CN Neodecaneperoxoic acid, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



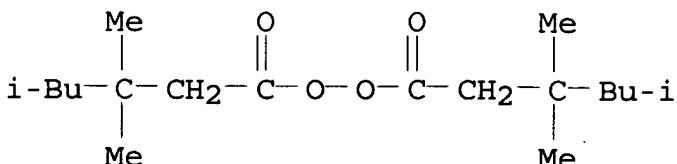
RN 32752-09-3 HCA

CN Peroxide, bis(2-methylpropyl) (CA INDEX NAME)



RN 92177-99-6 HCA

CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



IC ICM H01M010-40

INCL 429326000; 429329000; 429339000; 429340000  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 38  
ST lithium battery electrolyte  
IT Battery electrolytes  
    (electrolyte for lithium battery)  
IT Aromatic hydrocarbons, uses  
    Carbonates, uses  
    Esters, uses  
    Ethers, uses  
    Ketones, uses  
    (electrolyte for lithium battery)  
IT Azo compounds  
    (electrolyte for lithium battery)  
IT Carbonaceous materials (technological products)  
    (electrolyte for lithium battery)  
IT Sulfones  
    (electrolyte for lithium battery)  
IT Polyesters, uses  
    (hydroxy-terminated; electrolyte for lithium  
    battery)  
IT Secondary batteries  
    (lithium; electrolyte for lithium battery)  
IT Polyesters, uses  
    (methacrylate; electrolyte for lithium battery  
    )  
IT Peroxides, uses  
    (org., C3-30; electrolyte for lithium battery  
    )  
IT Esters, uses  
    (poly-; electrolyte for lithium battery)  
IT Imides  
    Sulfonic acids, uses  
        (sulfonimides, perfluoro derivs., lithium salts;  
        electrolyte for lithium battery)  
IT 56-81-5, Glycerol, uses 71-43-2, Benzene, uses 96-49-1, Ethylene  
    carbonate 98-95-3, Nitrobenzene, uses 105-58-8, Diethyl  
    carbonate 108-32-7, Propylene carbonate 108-88-3, Toluene, uses  
    108-90-7, Chlorobenzene, uses 149-32-6, Erythritol 462-06-6,  
    Fluorobenzene 616-38-6, Dimethyl carbonate 623-53-0, Methylethyl  
    carbonate 623-96-1, Dipropyl carbonate 1330-20-7, Xylene, uses  
    4437-85-8, Butylene carbonate 7790-99-0, Iodine chloride (ICl)  
    7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide (LiI)  
    14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium  
    tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate  
    21324-40-3, Lithium hexafluorophosphate 27359-10-0,  
    Trifluorotoluene 29935-35-1, Lithium hexafluoroarsenate  
    33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate,

uses 39300-70-4, Lithium nickel oxide 56525-42-9, Methyl propyl carbonate, uses 90076-65-6 131651-65-5, Lithium nonafluorobutanesulfonate 162684-16-4, Lithium manganese nickel oxide 193215-00-8, Cobalt lithium manganese nickel oxide Co0.1LiMn0.2Ni0.7O2

(electrolyte for lithium battery)

IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone 78-67-1, 2,2'-Azobisisobutyronitrile 94-36-0, Benzoyl peroxide, uses 105-64-6, Diisopropyl peroxy dicarbonate 105-74-8, Lauroyl peroxide 126-33-0, Tetramethylene sulfone 127-63-9, Phenyl sulfone 620-32-6, Benzyl sulfone 1561-49-5, Dicyclohexylperoxy dicarbonate 1712-87-4, m-Toluoyl peroxide 3006-82-4, tert-Butylperoxy-2-ethyl hexanoate 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl)peroxy dicarbonate 26748-41-4 28452-93-9, Butadiene sulfone 32752-09-3, Isobutyl peroxide 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide

(electrolyte for lithium battery)

IT 79-10-7DP, Acrylic acid, reaction product with dipentaerythritol and  $\epsilon$ -caprolactone and butylcarbonic acid 126-58-9DP, Dipentaerythritol, reaction product with  $\epsilon$ -caprolactone and acrylic acid and butylcarbonic acid 502-44-3DP,  $\epsilon$ -Caprolactone, reaction product with dipentaerythritol and acrylic acid and butylcarbonic acid 10411-26-4DP, MonoButylcarbonate, reaction product with dipentaerythritol and  $\epsilon$ -caprolactone and acrylic acid

(electrolyte for lithium battery)

L70 ANSWER 5 OF 8 HCA COPYRIGHT 2007 ACS on STN

140:149224 Nonaqueous **electrolytic** solution with improved safety for lithium **battery**. Kim, Jun-ho; Lee, Ha-young; Choy, Sang-hoon; Kim, Ho-sung (Samsung SDI Co., Ltd., S. Korea). U.S. Pat. Appl. Publ. US 2004029018 A1 20040212, 12 pp. (English). CODEN: USXXCO. APPLICATION: US 2003-637554 20030811. PRIORITY: KR 2002-47510 20020812.

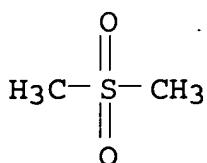
AB A nonaq. **electrolytic** soln. and a lithium **battery** employing the same include a lithium salt, an org. solvent, and a halogenated benzene compd. The use of the nonaq. **electrolytic** soln. causes formation of a polymer by oxidative decompn. of the **electrolytic** soln. even if a sharp voltage increase occurs due to overcharging of the **battery**, leading to consumption of an overcharge current, thus protecting the **battery**.

IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone 94-36-0, Benzoylperoxide, uses 105-64-6, Diisopropyl peroxy dicarbonate 105-74-8, Lauroyl peroxide 126-33-0, Tetramethylene sulfone 127-63-9, Phenyl

sulfone 620-32-6, Benzyl sulfone 1561-49-5,  
 Dicyclohexyl peroxy dicarbonate 1712-87-4, m-Toluoyl  
 peroxide 3006-82-4, tert-Butylperoxy-2-ethylhexanoate  
 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl)  
 peroxydicarbonate 32752-09-3, Isobutyl peroxide  
 92177-99-6, 3,3,5-Trimethylhexanoylperoxide  
 (nonaq. electrolytic soln. with improved safety for  
 lithium battery)

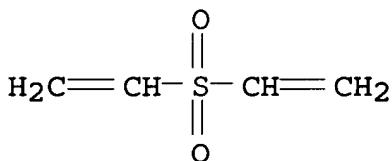
RN 67-71-0 HCA

CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)



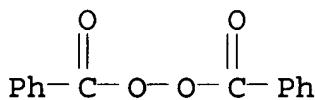
RN 77-77-0 HCA

CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



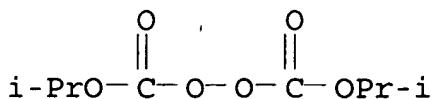
RN 94-36-0 HCA

CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



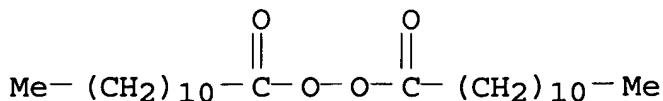
RN 105-64-6 HCA

CN Peroxydicarbonic acid, bis(1-methylethyl) ester (9CI) (CA INDEX NAME)

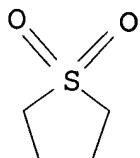


RN 105-74-8 HCA

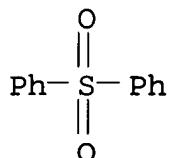
CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



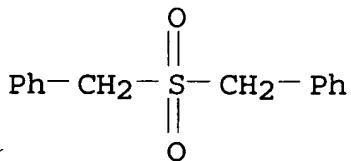
RN 126-33-0 HCA  
 CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



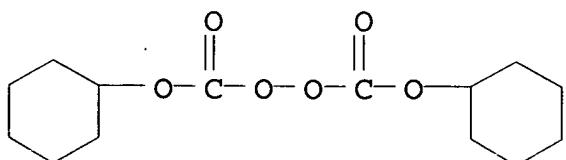
RN 127-63-9 HCA  
 CN Benzene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



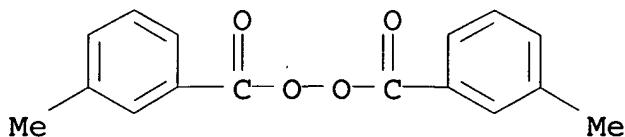
RN 620-32-6 HCA  
 CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (9CI) (CA INDEX NAME)



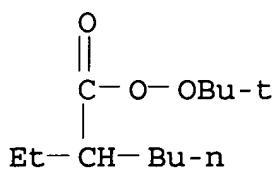
RN 1561-49-5 HCA  
 CN Peroxydicarbonic acid, dicyclohexyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



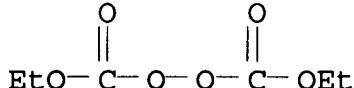
RN 1712-87-4 HCA  
 CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



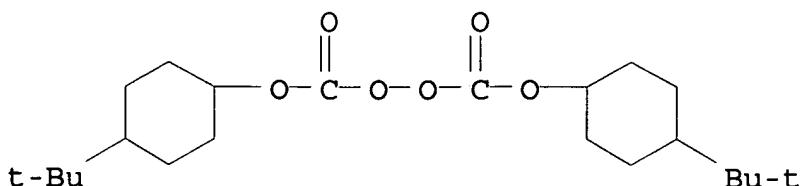
RN 3006-82-4 HCA  
 CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



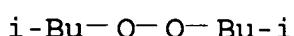
RN 14666-78-5 HCA  
 CN Peroxydicarbonic acid, diethyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



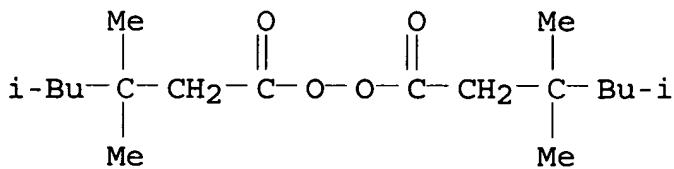
RN 15520-11-3 HCA  
 CN Peroxydicarbonic acid, bis[4-(1,1-dimethylethyl)cyclohexyl] ester (9CI) (CA INDEX NAME)



RN 32752-09-3 HCA  
 CN Peroxide, bis(2-methylpropyl) (CA INDEX NAME)



RN 92177-99-6 HCA  
 CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



IC ICM H01M010-40  
 INCL 429326000; 429200000; 429340000; 429331000; 429332000  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST lithium **battery** nonaq **electrolyte** soln improved safety  
 IT Esters, uses  
 Ethers, uses  
 Hydrocarbons, uses  
 (C1-20; nonaq. **electrolytic** soln. with improved safety for lithium **battery**)  
 IT Aromatic hydrocarbons, uses  
 (C5-20; nonaq. **electrolytic** soln. with improved safety for lithium **battery**)  
 IT Secondary **batteries**  
 (lithium; nonaq. **electrolytic** soln. with improved safety for lithium **battery**)  
 IT **Battery electrolytes**  
 (nonaq. **electrolytic** soln. with improved safety for lithium **battery**)  
 IT Polyesters, uses  
 (nonaq. **electrolytic** soln. with improved safety for lithium **battery**)  
 IT Alcohols, uses  
 (polyhydric; nonaq. **electrolytic** soln. with improved safety for lithium **battery**)  
 IT 3087-37-4, Tetrapropyltitanate  
 (nonaq. **electrolytic** soln. with improved safety for lithium **battery**)  
 IT 502-44-3,  $\epsilon$ -Caprolactone 7439-93-2D, Lithium, salt  
 12190-79-3, Cobalt lithium oxide colio2  
 (nonaq. **electrolytic** soln. with improved safety for lithium **battery**)  
 IT 126-58-9DP, Dipentaerythritol, deriv.  
 (nonaq. **electrolytic** soln. with improved safety for lithium **battery**)  
 IT 56-81-5, Glycerol, uses 67-71-0, Methyl sulfone  
 71-43-2D, Benzene, halogenated 77-77-0, Vinyl sulfone  
 94-36-0, Benzoylperoxide, uses 96-49-1, Ethylene carbonate  
 105-64-6, Diisopropyl peroxy dicarbonate 105-74-8,  
 Lauroyl peroxide 108-32-7, Propylene carbonate 115-77-5,  
 Pentaerythritol, uses 126-33-0, Tetramethylene sulfone

126-58-9, DiPentaerythritol 127-63-9, Phenyl sulfone  
 456-55-3, Trifluoromethyl phenyl ether 462-06-6, Fluorobenzene  
 620-32-6, Benzyl sulfone 623-53-0, Ethyl methyl carbonate  
 1561-49-5, Dicyclohexyl peroxy dicarbonate 1712-87-4  
 , m-Toluoyl peroxide 2972-19-2 3006-82-4,  
 tert-Butylperoxy-2-ethylhexanoate 9002-88-4, Polyethylene  
 9003-07-0, Polypropylene 14666-78-5 15520-11-3,  
 Bis(4-tert-butylcyclohexyl) peroxydicarbonate 21151-56-4, Benzene,  
 1-chloro-4-(chloromethoxy)- 21324-40-3, Lithium  
 hexafluorophosphate 28452-93-9, Butadiene sulfone  
 32752-09-3, Isobutyl peroxide 49717-97-7, 2-Propenoic  
 acid, 2-methyl-, ion(1-) homopolymer, uses 92177-99-6,  
 3,3,5-Trimethylhexanoylperoxide 651294-25-6 651294-26-7  
 651294-27-8  
 (nonaq. **electrolytic** soln. with improved safety for  
 lithium **battery**)

L70 ANSWER 6 OF 8 HCA COPYRIGHT 2007 ACS on STN

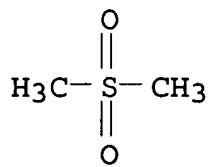
139:294681 **Electrolyte** for lithium **battery** to reduce  
 overcharge and improve electrochemical characteristics. Kim,  
 Jun-Ho; Lee, Ha-Young; Choy, Sang-Hoon; Kim, Ho-Sung; Noh,  
 Hyeong-Gon (Samsung SDI Co., Ltd., S. Korea). U.S. Pat. Appl. Publ.  
 US 2003190529 A1 20031009, 19 pp. (English). CODEN: USXXCO.  
 APPLICATION: US 2003-393294 20030321. PRIORITY: KR 2002-18264  
 20020403.

AB An **electrolyte** for a lithium **battery** includes a  
 nonaq. org. solvent, a lithium salt, and an additive comprising (a)  
 a compd. represented by the formula  $[(R1)_nC_6H(6-n+m)(X)m]$ , and (b) a  
 compd. selected from the group consisting of a sulfone-based compd.,  
 a poly(ester)(meth)acrylate, a polymer of poly(ester)(meth)acrylate,  
 and a mixt. thereof: wherein R1 is a C1-10 alkyl, a C 1-10 alkoxy,  
 or a C6-10 aryl, and preferably a Me, Et, or methoxy, X is a  
 halogen, and m and n are integers ranging from 1 to 5, where m+n is  
 less than or equal to 6.

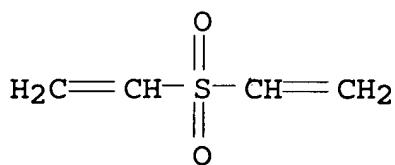
IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone  
 94-36-0, Benzoyl peroxide, uses 105-64-6,  
 Diisopropyl peroxy dicarbonate 105-74-8, Lauroyl peroxide  
 126-33-0, Tetramethylene sulfone 127-63-9, Phenyl  
 sulfone 620-32-6, Benzyl sulfone 1561-49-5,  
 Dicyclohexyl peroxy dicarbonate 1712-87-4, m-Toluoyl  
 peroxide 3006-82-4, tert-Butylperoxy-2-ethyl-hexanoate  
 14666-78-5 15520-11-3, Bis(4-tert-  
 butylcyclohexyl)peroxy dicarbonate 32752-09-3, Isobutyl  
 peroxide 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide  
 (**electrolyte** for lithium **battery** to reduce  
 overcharge and improve electrochem. characteristics)

RN 67-71-0 HCA

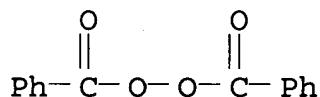
CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)



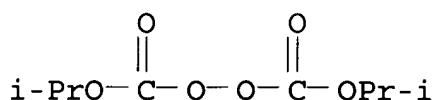
RN 77-77-0 HCA  
 CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



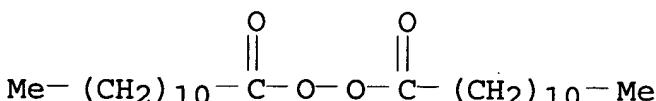
RN 94-36-0 HCA  
 CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



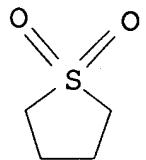
RN 105-64-6 HCA  
 CN Peroxydicarbonic acid, bis(1-methylethyl) ester (9CI) (CA INDEX NAME)



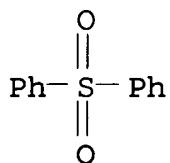
RN 105-74-8 HCA  
 CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



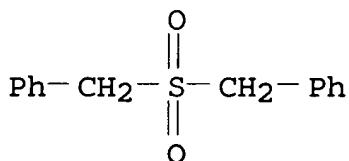
RN 126-33-0 HCA  
 CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



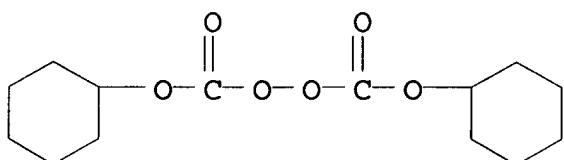
RN 127-63-9 HCA  
 CN Benzene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



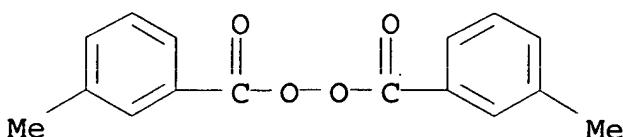
RN 620-32-6 HCA  
 CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (9CI) (CA INDEX NAME)



RN 1561-49-5 HCA  
 CN Peroxydicarbonic acid, dicyclohexyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)

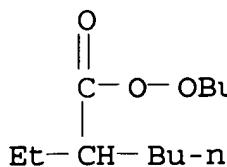


RN 1712-87-4 HCA  
 CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



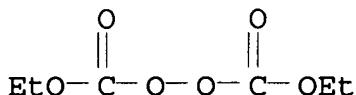
RN 3006-82-4 HCA

CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



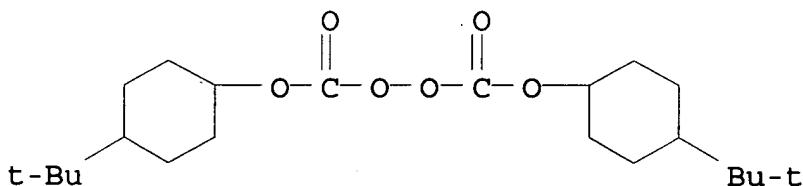
RN 14666-78-5 HCA

CN Peroxydicarbonic acid, diethyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



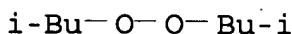
RN 15520-11-3 HCA

CN Peroxydicarbonic acid, bis[4-(1,1-dimethylethyl)cyclohexyl] ester (9CI) (CA INDEX NAME)



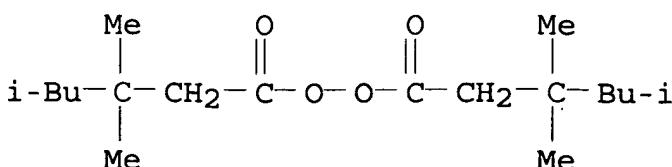
RN 32752-09-3 HCA

CN Peroxide, bis(2-methylpropyl) (CA INDEX NAME)



RN 92177-99-6 HCA

CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



IC ICM H01M006-18  
INCL 429307000; 429309000; 429326000; 429322000; 429323000; 429330000  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
ST lithium battery electrolyte overcharge lowering  
IT **Battery electrolytes**  
(electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)  
IT **Secondary batteries**  
(lithium; electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)  
IT **Peroxides, uses**  
(org.; electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)  
IT **Alcohols, uses**  
(trihydric; electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)  
IT 3087-37-4, Tetrapropyltitanate  
(electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)  
IT 71-43-2, Benzene, uses 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 108-88-3, Toluene, uses 462-06-6, Fluorobenzene 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 1330-20-7, Xylene, uses 4437-85-8, Butylene carbonate 7447-41-8, Lithium chloride (LiCl), uses 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide (LiI) 12355-58-7, Lithium aluminate (Li<sub>5</sub>AlO<sub>4</sub>) 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 27359-10-0, Trifluorotoluene 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate, uses 56525-42-9, Methyl propyl carbonate, uses 90076-65-6 131651-65-5, Lithium perfluorobutanesulfonate  
(electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)  
IT 126-58-9DP, Dipentaerythritol, reaction product with ε-caprolactone 502-44-3DP, ε-Caprolactone, reaction product with dipentaerythritol 609772-45-4P  
(electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)  
IT 56-81-5, Glycerol, uses 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone 79-10-7D, Acrylic acid, ω-fatty acid esters C<sub>2</sub>-C<sub>21</sub> 79-41-4D, Methacrylic acid, ω-fatty acid esters C<sub>2</sub>-C<sub>21</sub> 94-36-0, Benzoyl peroxide, uses 104-92-7, 4-Bromoanisole 105-64-6, Diisopropyl peroxy dicarbonate 105-74-8, Lauroyl peroxide 126-33-0, Tetramethylene sulfone 127-63-9, Phenyl sulfone 149-32-6, Erythritol 452-10-8, 2,4-Difluoroanisole

456-49-5, 3-Fluoroanisole 459-60-9, 4-Fluoroanisole  
 620-32-6, Benzyl sulfone 623-12-1, 4-Chloroanisole  
 1561-49-5, Dicyclohexyl peroxy dicarbonate 1712-87-4  
 , m-Toluoyl peroxide 2398-37-0, 3-Bromoanisole 2845-89-8,  
 3-Chloroanisole 3006-82-4, tert-Butylperoxy-2-ethyl-  
 hexanoate 14666-78-5 15520-11-3,  
 Bis(4-tert-butylcyclohexyl)peroxy dicarbonate 28452-93-9,  
 Butadiene sulfone 32752-09-3, Isobutyl peroxide  
 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide 93343-10-3,  
 3,5-Difluoroanisole 202925-08-4, 3-Chloro-5-fluoroanisole  
 609365-67-5  
 (electrolyte for lithium **battery** to reduce  
 overcharge and improve electrochem. characteristics)

L70 ANSWER 7 OF 8 HCA COPYRIGHT 2007 ACS on STN

139:182872 Polymer **electrolyte** for lithium secondary  
**battery**. Jung, Cheol-Soo; Kim, Ki-Ho; Bong, Cul-Hwen; Yang,  
 Doo-Kyung; Lee, Kyoung-Hee; Lee, Yong-Beom; Lim, Hyun-Leong;  
 Yamaguchi, Takitaro; Shimizu, Ryuichi (Samsung SDI Co., Ltd., S.  
 Korea). U.S. Pat. Appl. Publ. US 2003157411 A1 20030821, 14 pp.  
 (English). CODEN: USXXCO. APPLICATION: US 2002-287486 20021105. *W*  
 PRIORITY: KR 2002-8303 20020216.

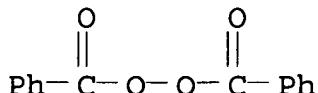
AB A solid polymer **electrolyte**, a lithium **battery**  
 employing the same, and methods of forming the **electrolyte**  
 and the lithium **battery** are disclosed. The polymer  
**electrolyte** includes polyester methacrylate having a  
 polyester polyol moiety having three or more hydroxide (-OH) groups,  
 at least one hydroxide group being substituted by a methacrylic ester  
 group and at least one hydroxide group being substituted by a  
 radical non-reactive group, or its polymer, a peroxide having 6-40  
 carbon atoms, and an **electrolytic** soln. including a  
 lithium salt and an org. solvent.

IT 94-36-0, Benzoyl peroxide, processes 105-74-8,  
 Lauroyl peroxide

(polymer **electrolyte** for lithium secondary  
**battery**)

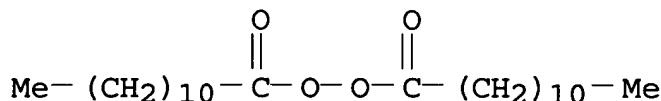
RN 94-36-0 HCA

CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



RN 105-74-8 HCA

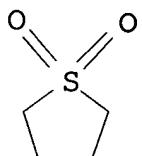
CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



IT 126-33-0, Sulfolane  
(polymer **electrolyte** for lithium secondary  
**battery**)

RN 126-33-0 HCA

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



IC ICM H01M010-40  
ICS H01M010-04

INCL 429317000; 429307000; 429316000; 029623100

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 38

ST polymer **electrolyte** lithium secondary **battery**

IT Aromatic hydrocarbons, uses  
(fluoro; polymer **electrolyte** for lithium secondary  
**battery**)

IT Secondary **batteries**  
(lithium; polymer **electrolyte** for lithium secondary  
**battery**)

IT Battery electrolytes  
Polymer electrolytes  
(polymer **electrolyte** for lithium secondary  
**battery**)

IT Polyesters, uses  
(polymer **electrolyte** for lithium secondary  
**battery**)

IT 3087-37-4, Tetrapropyltitanate  
(polymer **electrolyte** for lithium secondary  
**battery**)

IT 94-36-0, Benzoyl peroxide, processes 105-74-8,  
Lauroyl peroxide  
(polymer **electrolyte** for lithium secondary  
**battery**)

IT 67-68-5, Dmso, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile,  
uses 96-47-9, 2-Methyltetrahydrofuran 96-48-0,  
γ-Butyrolactone 96-49-1, Ethylene carbonate 98-95-3,

Nitrobenzene, uses 100-47-0, Benzonitrile, uses 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 108-90-7, Chlorobenzene, uses 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 111-46-6, Diethylene glycol, uses 115-10-6, Dimethyl ether 126-33-0, Sulfolane 127-19-5, Dimethylacetamide 542-52-9, Dibutyl carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 646-06-0, Dioxolane 872-36-6, Vinylene carbonate 1072-47-5, 1,3-Dioxolane, 4-methyl 1300-21-6, Dichloroethane 4437-85-8, Butylene carbonate 6482-34-4, Diisopropyl carbonate 7447-41-8, Lithium chloride (LiCl), uses 7791-03-9, Lithium perchlorate 9002-88-4, Polyethylene 9003-07-0, Polypropylene 10377-51-2, Lithium iodide (LiI) 14024-11-4, Aluminum lithium chloride allicl4 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 30714-78-4, Ethyl butyl carbonate 33454-82-9, Lithium triflate 51729-83-0, Methyl isopropyl carbonate 56525-42-9, Methyl propyl carbonate, uses 90076-65-6 131651-65-5

(polymer electrolyte for lithium secondary battery)

IT 95-52-3; 2-Fluorotoluene 352-32-9, 4-Fluorotoluene 352-70-5, 3-Fluorotoluene 462-06-6, Benzene, fluoro- 581054-59-3D, mixed acrylic and pentanoic acid esters

(polymer electrolyte for lithium secondary battery)

L70 ANSWER 8 OF 8 HCA COPYRIGHT 2007 ACS on STN

126:92052 Catalyst-containing solid electrolytes and batteries using these electrolytes.

Chaloner-Gill, Benjamin; Olsen, Ib I.; Saidi, Eileen S. (USA). U.S. US 5580680 A 19961203, 8 pp. (English). CODEN: USXXAM.

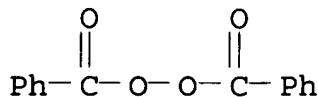
APPLICATION: US 1994-267066 19940627.

AB The electrolytes include a 1st catalyst that is capable of initiating the polymn. of solvent components at elevated temps. to increase the resistance (or impedance) of the solid electrolyte and thereby prevent thermal runaway and/or a 2nd catalyst that is capable of initiating the polymn. of flammable substances (e.g., olefins) in the solvent. To assure that the catalysts do not prematurely initiate polymn. below a certain temp., the catalysts may be microencapsulated within a heat-sensitive material that disintegrates or dissolve at a predetd. elevated temp. to release the catalysts. Microencapsulation permits the controlled release of the catalysts into the electrolyte under the appropriate conditions.

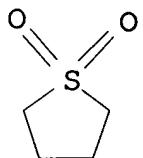
IT 94-36-0, Benzoyl peroxide, uses

(polymn. catalyst for battery solid electrolytes)

RN 94-36-0 HCA  
 CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



IT 126-33-0, Sulfolane  
 (polymn. catalyst for **battery** solid  
 electrolytes contg. solvent of)  
 RN 126-33-0 HCA  
 CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



IC ICM H01M006-16  
 INCL 429192000  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 37  
 ST **battery** solid **electrolyte** solvent polymn  
 catalyst; flammable substance polymn catalyst **battery**  
**electrolyte**; safety **battery** polymn catalyst  
**electrolyte**  
 IT Polymerization catalysts  
 (Ziegler-Natta; for **battery** solid **electrolytes**  
 )  
 IT Polymerization catalysts  
 (**battery** solid **electrolytes** contg.)  
 IT **Battery** electrolytes  
 (contg. polymn. catalyst)  
 IT Secondary **batteries**  
 (lithium; with polymn. catalysts for safety)  
 IT Safety  
 (of lithium **batteries** with polymn. catalysts-contg.  
 solid **electrolytes**)  
 IT Bronsted acids  
 (polymn. catalyst for **battery** solid  
**electrolytes**)  
 IT 78-67-1, Azobisisobutyronitrile 94-36-0, Benzoyl peroxide,  
 uses 110-22-5, Acetyl peroxide 7440-23-5, Sodium, uses  
 7637-07-2, Boron trifluoride, uses  
 (polymn. catalyst for **battery** solid

**electrolytes)**

IT 67-68-5, uses 96-48-0,  $\gamma$ -Butyrolactone 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 110-71-4, Glyme 111-96-6, Diglyme 112-49-2, Triglyme 126-33-0, Sulfolane 143-24-8, Tetruglyme 646-06-0, Dioxolane  
(polymn. catalyst for **battery** solid  
**electrolytes** contg. solvent of)

=>

=> D L71 1-6 CBIB ABS HITSTR HITIND

L71 ANSWER 1 OF 6 HCA COPYRIGHT 2007 ACS on STN

146:145946 **Electrolyte** for lithium secondary **battery**

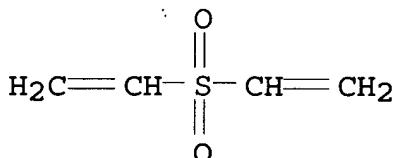
Kim, Cheonsoo (Samsung Sdi Co., Ltd., S. Korea). U.S. Pat. Appl. Publ. US 2007009806 A1 20070111, 11pp. (English). CODEN: USXXCO. APPLICATION: US 2006-481911 20060707. PRIORITY: KR 2005-61409 20050707.

AB The invention concerns an **electrolyte** for a lithium secondary **battery** and a lithium secondary **battery** having the **electrolyte**, the **electrolyte** including a lithium salt; a non-aq. org. solvent including  $\gamma$ -butyrolactone-; and a succinic anhydride.

IT 77-77-0, Divinyl sulfone  
(**electrolyte** for lithium secondary **battery**)

RN 77-77-0 HCA

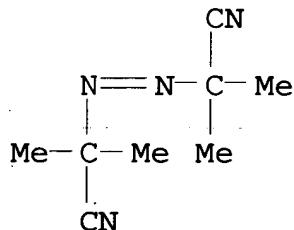
CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



IT 78-67-1, 2,2'-Azo-bis(isobutyronitrile)  
(**electrolyte** for lithium secondary **battery**)

RN 78-67-1 HCA

CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



INCL 429329000; 429332000; 429200000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **electrolyte** lithium secondary **battery**

IT **Battery electrolytes**  
(**electrolyte** for lithium secondary **battery**)

IT Aromatic hydrocarbons, uses

Esters, uses

Ethers, uses

Ketones, uses

(electrolyte for lithium secondary battery)

IT Secondary batteries

(lithium; electrolyte for lithium secondary battery)

IT 77-77-0, Divinyl sulfone 96-48-0,  $\gamma$ -Butyrolactone 108-30-5, Succinic anhydride, uses 872-36-6, Vinylene carbonate 3741-38-6, Ethylene sulfite 25721-76-0, Poly(ethylene glycol)dimethacrylate 26570-48-9, Poly(ethylene glycol)diacrylate 49717-87-5, uses 919110-87-5

(electrolyte for lithium secondary battery)

IT 94-36-0, Dibenzoyl peroxide, reactions 105-64-6, Di-isopropyl peroxydicarbonate 105-74-8, Dilauroyl peroxide 107-71-1, tert-Butyl peroxy acetate 109-13-7, tert-Butyl peroxy isobutyrate 110-22-5, Diacetyl peroxide 614-45-9, tert-Butyl peroxy benzoate 686-31-7, tert-Amylperoxy 2-ethyl hexanoate 927-07-1, tert-Butyl peroxy pivalate 2372-21-6, tert-Butyl peroxy isopropyl carbonate 3006-82-4, tert-Butylperoxy-2-ethyl hexanoate 3851-87-4, Bis(3,5,5-trimethylhexanoyl) peroxide 13122-18-4 15518-51-1, Diethylene glycol bis(tert-butyl peroxy carbonate) 15520-11-3, Bis(4-tert-butylcyclohexyl) peroxydicarbonate 16111-62-9, Di-2-ethylhexyl peroxy dicarbonate 26748-38-9, tert-Butyl peroxy neoheptanoate 29240-17-3, tert-Amyl peroxy pivalate 34443-12-4, tert-Butyl peroxy-2-ethylhexyl carbonate 36536-42-2 51938-28-4, tert-Hexyl peroxy pivalate 52238-68-3 68860-54-8 919110-90-0

(electrolyte for lithium secondary battery)

IT 71-43-2, Benzene, uses 78-67-1, 2,2'-Azo-bis(isobutyronitrile) 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 108-67-8, Mesitylene, uses 108-86-1, Bromobenzene, uses 108-88-3, Toluene, uses 108-90-7, Chlorobenzene, uses 462-06-6, Fluorobenzene 463-79-6D, Carbonic acid, ester 616-38-6, Dimethyl carbonate 623-53-0, EthylMethyl carbonate 623-96-1, Dipropyl carbonate 1330-20-7, Xylene, uses 2094-98-6 4419-11-8, 2,2'-Azo-bis(2,4-dimethyl valeronitrile) 4437-70-1, 2,3-Butylene carbonate 4437-85-8, 1,2-Butylene carbonate 4437-86-9 7447-41-8, Lithium chloride, uses 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethylpropyl carbonate 37220-89-6, Aluminum lithium oxide 56525-42-9, Methylpropyl carbonate 89489-56-5, 1,2-Pentylene carbonate 90076-65-6 114435-02-8, Fluoroethylene carbonate 131651-65-5

(electrolyte for lithium secondary battery)

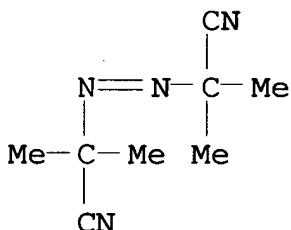
**electrolysis.** Ma, Qian; Ye, Shaodan; Li, Yijiu; Liu, Yafei; Ni, Yaming (School of Life Science and Technology Analysis and Research Center, Tongji University, Shanghai, 200092, Peop. Rep. China). *Gongye Shuichuli*, 23(5), 38-41 (Chinese) 2003. CODEN: GOSHFA. ISSN: 1005-829X. Publisher: Gongye Shuichuli Zazhishe.

**AB** The photoresist-contg. wastewater was treated by the Fe chip micro-**electrolysis** method. The inorg. and org. pollutants in the wastewater after the treatment were analyzed by ICP-AES and GC-MS. There were several kinds of mechanisms for the removal or degrdn. of contaminants, such as the electrochem. corrosion, activated C absorption, coagulation sedimentation of Fe<sup>3+</sup> and Fe<sup>2+</sup>, the redn. of Fe, etc. The removal efficiency for heavy metals such as Cu, Zn, V, and Sn was 100, 47, 100, and 98.1%, resp. The removal efficiency for phthalic anhydride, homologs of polypropylene glycol, 2-butenoic acid, and benzoic acid were 100, 29.9, 27.7, and 56.5%, resp. The degradability for nitrobenzene and 2-chlorobutenoic acid was all 100%.

**IT** 78-67-1, Azobis(isobutyronitrile) 3112-85-4,  
Methyl phenyl sulfone  
(iron chip micro-**electrolysis** of photoresist-contg.  
wastewater)

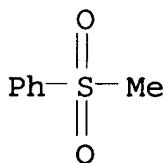
**RN** 78-67-1 HCA

**CN** Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



**RN** 3112-85-4 HCA

**CN** Benzene, (methylsulfonyl)- (CA INDEX NAME)



**CC** 60-2 (Waste Treatment and Disposal)

**IT** Wastewater treatment  
(absorption; iron chip micro-**electrolysis** of  
photoresist-contg. wastewater)

**IT** Wastewater treatment

(coagulation; iron chip micro-electrolysis of photoresist-contg. wastewater)

IT Wastewater treatment  
(electrochem.; iron chip micro-electrolysis of photoresist-contg. wastewater)

IT Heavy metals  
Polyoxyalkylenes, processes  
(iron chip micro-electrolysis of photoresist-contg. wastewater)

IT Wastewater treatment  
(settling; iron chip micro-electrolysis of photoresist-contg. wastewater)

IT 7439-89-6, Iron, uses  
(iron chip micro-electrolysis of photoresist-contg. wastewater)

IT 65-85-0, Benzoic acid, processes 70-55-3, 4-  
Methylbenzenesulfonamide 78-67-1, Azobis(isobutyronitrile)  
85-44-9, Phthalic anhydride 98-95-3, Nitrobenzene, processes  
100-52-7, Benzaldehyde, processes 104-76-7, 2-Ethyl-1-hexanol  
119-61-9, Benzophenone, processes 121-69-7, N,N-Dimethylaniline,  
processes 123-86-4, Butyl acetate 600-13-5 619-56-7,  
4-Chlorobenzamide 822-06-0, Hexamethylene diisocyanate 930-68-7,  
2-Cyclohexenone 3112-85-4, Methyl phenyl sulfone  
3724-65-0, 2-Butenoic acid 7440-31-5, Tin, processes 7440-50-8,  
Copper, processes 7440-62-2, Vanadium, processes 7440-66-6,  
Zinc, processes 13423-22-8, 3,3,4,4-Tetramethyl-2-azetidinone  
25322-69-4, Polypropylene glycol 29911-27-1  
(iron chip micro-electrolysis of photoresist-contg.  
wastewater)

L71 ANSWER 3 OF 6 HCA COPYRIGHT 2007 ACS on STN

140:256340 Anodes for lithium **battery**. Kim, Yong-tae; Choi,  
Su-suk; Choi, Yun-suk; Lee, Kyoung-hee (Samsung Sdi Co., Ltd., S.  
Korea). U.S. Pat. Appl. Publ. US 2004058232 A1 20040325, 10 pp.  
(English). CODEN: USXXCO. APPLICATION: US 2003-664157 20030917/  
PRIORITY: KR 2002-57577 20020923.

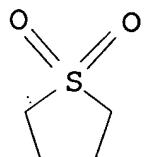
AB A lithium neg. electrode for a lithium **battery** has good  
cycle life and capacity characteristics. The lithium neg. electrode  
comprises a lithium metal layer and a protective layer present on  
the lithium metal layer, where the protective layer includes an  
organosulfur compd. An organosulfur compd. having a thiol terminal  
group is preferred since such a compd. can form a complex with  
lithium metal to enable coating to be carried out easily. The  
organosulfur compd. has a large no. of S or N elements having high  
electronegativity to form a complex with lithium ions, so it renders  
lithium ions to be deposited relatively evenly on the lithium metal  
surface, reducing dendrite formation.

IT 126-33-0, Sulfolane

(anodes for lithium **battery**)

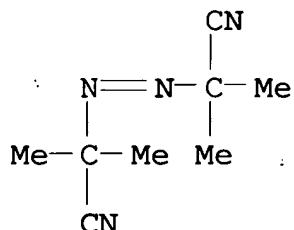
RN 126-33-0 HCA

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)

IT 78-67-1, Azobisisobutyronitrile  
(anodes for lithium **battery**)

RN 78-67-1 HCA

CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



IC ICM H01M002-16

ICS H01M004-66; H01M004-40

INCL 429137000; 429246000; 429245000; 429212000; 429231950

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 38ST anode lithium **battery**

IT Chalcogenides

Oxides (inorganic), uses

(Li-contg.; anodes for lithium **battery**)

IT Peroxides, uses

(acyl; anodes for lithium **battery**)

IT Hydroperoxides

(alkyl, tertiary; anodes for lithium **battery**)

IT Peroxides, uses

(alkyl; anodes for lithium **battery**)IT **Battery** anodes

Coating materials

Conducting polymers

(anodes for lithium **battery**)

IT Acrylic polymers, uses

Polyanilines

Polyoxyalkylenes, uses

(anodes for lithium **battery**)

- IT Amino acids, uses  
Halogens  
Lewis acids  
Rare earth chlorides  
Sulfonic acids, uses  
Transition metal compounds  
(dopant; anodes for lithium **battery**)
- IT Primary **batteries**  
Secondary **batteries**  
(lithium; anodes for lithium **battery**)
- IT Esters, uses  
Ketals  
(peroxy; anodes for lithium **battery**)
- IT Crown ethers  
Polybenzimidazoles  
Polyquinolines  
Polyquinoxalines  
(thiophenes, polymers; anodes for lithium **battery**)
- IT 110-71-4 111-96-6, Diglyme 126-33-0, Sulfolane  
646-06-0, 1,3-Dioxolane 7439-93-2, Lithium, uses 7704-34-9,  
Sulfur, uses  
(anodes for lithium **battery**)
- IT 67-63-0, Isopropyl alcohol, uses 75-91-2, tert-Butyl hydroperoxide  
78-63-7, 2,5-Dimethyl-2,5-di-(tert-butylperoxy)hexane  
78-67-1, Azobisisobutyronitrile 80-15-9, Cumene  
hydroperoxide 80-43-3, Dicumyl peroxide 94-36-0, Dibenzoyl  
peroxide, uses 105-74-8, Dilauroyl peroxide 110-05-4,  
Di-tert-butyl peroxide 123-23-9, Succinic acid peroxide  
762-12-9, Didecanoyl peroxide 927-07-1, tert-Butylperoxypivalate  
2167-23-9, 2,2-Di-(tert-butylperoxy)butane 3025-88-5,  
2.5-Dihydroperoxy-2,5-dimethylhexane 4511-39-1,  
tert-Amylperoxybenzoate 15667-10-4, 1,1-Di-(tert-  
amylperoxy)cyclohexane 16066-38-9, Di(n-propyl)peroxy dicarbonate  
16111-62-9, Di(2-ethylhexyl)peroxy dicarbonate 19910-65-7,  
Di(sec-butyl)peroxy dicarbonate 24937-05-1, Poly(ethyleneadipate)  
24938-43-0, Poly( $\beta$ -propiolactone) 24969-06-0,  
Polyepichlorohydrin 25190-62-9, Poly(p-phenylene) 25233-30-1,  
Polyaniline 25233-30-1D, Polyaniline, sulfonated 25233-34-5,  
Polythiophene 25233-34-5D, Polythiophene, derivs. 25322-68-3,  
Peo 25322-69-4, Polypropylene oxide 25667-11-2,  
Poly(ethylenesuccinate) 25721-76-0, Polyethylene glycol  
dimethacrylate 25852-49-7, Polypropylene glycol dimethacrylate  
26570-48-9, Poly(ethylene glycol diacrylate) 26748-47-0,  
 $\alpha$ -Cumylperoxyneodecanoate 34099-48-4, Peroxydicarbonate  
52496-08-9, Poly(propyleneglycoldiacrylate) 55794-20-2, Ethyl  
3,3-di-(tert-butylperoxy)butyrate 95732-35-7 97332-10-0,  
Poly(N-propylaziridine) 139096-57-4, Isoquinoline homopolymer  
172973-34-1

(anodes for lithium **battery**)

IT 865-44-1, Iodine trichloride 1493-13-6, Triflic acid 7446-11-9, Sulfur trioxide, uses 7550-45-0, Titanium chloride (TiCl<sub>4</sub>) (T-4)-, uses 7553-56-2, Iodine, uses 7601-90-3, Perchloric acid, uses 7637-07-2, uses 7647-01-0, Hydrochloric acid, uses 7647-19-0, Phosphorus pentafluoride 7664-39-3, Hydrofluoric acid, uses 7664-93-9, Sulfuric acid, uses 7697-37-2, Nitric acid, uses 7705-08-0, Ferric chloride, uses 7721-01-9, Tantalum chloride (TaCl<sub>5</sub>) 7726-95-6, Bromine, uses 7782-44-7, Oxygen, uses 7782-50-5, Chlorine, uses 7783-68-8, Niobium fluoride nbf5 7783-70-2, Antimony pentafluoride 7783-81-5 7783-82-6 7783-93-9, Silver perchlorate 7784-36-3, Arsenic pentafluoride 7789-21-1, Fluorosulfonic acid 7789-33-5, Iodine monobromide 7790-94-5, Chlorosulfonic acid 7790-99-0, Iodine monochloride 10026-11-6 10026-12-7, Niobium chloride (NbCl<sub>5</sub>) 10277-43-7, Lanthanum nitrate hexahydrate 10294-33-4, Boron tribromide 10294-34-5 13283-01-7 13499-05-3 13709-32-5, Bis(fluorosulfonyl)peroxide 13774-85-1 13819-84-6, Molybdenum fluoride mof5 13870-10-5, Iron chloride oxide feocl 13873-84-2, Iodine monofluoride 14635-75-7, Nitrosyl tetrafluoroborate 14797-73-0, Perchlorate 14874-70-5, Tetrafluoroborate 16871-80-0, Nitrosyl hexachloroantimonate 16887-00-6, Chloride, uses 16919-18-9, Hexafluorophosphate 16941-92-7, Hexachloroiridic acid 16973-45-8, Hexafluoroarsenate 17111-95-4 17856-92-7 20461-54-5, Iodide, uses 24959-67-9, Bromide, uses 25321-43-1, Octylbenzenesulfonic acid 27176-87-0, Dodecylbenzene sulfonic acid

(dopant; anodes for lithium **battery**)

IT 540-63-6, 1,2-Ethanedithiol 1072-71-5, 2,5-Dimercapto-1,3,4-thiadiazole 2001-93-6, 2,4-Dimercaptopyrimidine 2150-02-9, Bis(2-mercaptopethyl)ether 3570-55-6, Bis(2-mercaptopethyl)sulfide 9002-98-6 9002-98-6D, derivs. 37306-44-8D, Triazole, mercapto derivs 131538-50-6 135886-78-1 135886-79-2

(protective coating; anodes for lithium **battery**)

IT 7704-34-9D, Sulfur, organosulfur compd.

(protective layer; anodes for lithium **battery**)

IT 273-77-8, 1,2,3-Benzothiadiazole 612-79-3, 6,6'-Biquinoline 25013-01-8, Polypyridine 25013-01-8D, Polypyridine, derivs. 26856-35-9, Dihydrophenanthrene 27986-50-1, Poly(1,3-cyclohexadiene) 30604-81-0, Polypyrrole 30604-81-0D, Polypyrrole, derivs. 51937-67-8, Polyferrocene 71730-08-0, Polyanthraquinone 136902-52-8, 2,2'-Bipyridine homopolymer 136902-52-8D, 2,2'-Bipyridine homopolymer, derivs. 190201-51-5, Pyrimidine homopolymer 190201-57-1, 1,5-Naphthyridine homopolymer (thiophenes, polymers; anodes for lithium **battery**)

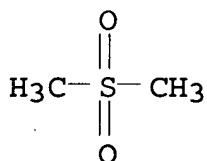
Yong-Chul; Jung, Won-Ii; Kim, Geun-Bae; Cho, Jae-Phil; Jung, Cheol-Soo (S. Korea). U.S. Pat. Appl. Publ. US 2004048163 A1 20040311, 13 pp. (English). CODEN: USXXCO. APPLICATION: US 2003-656086 20030905. PRIORITY: KR 2002-53879 20020906.

AB An **electrolyte** for a lithium **battery** includes a nonaq. org. solvent, a lithium salt, and an additive comprising (a) a sulfone-based compd. and (b) a C3-30 org. peroxide or azo-based compd. The **electrolyte** may further include a poly(ester) (meth)acrylate or a polymer that is derived from a (polyester)polyol with at least three hydroxyl (-OH) groups, where a portion or all of the hydroxyl groups are substituted with a (meth)acrylic ester and the remaining hydroxyl groups that are not substituted with the (meth)acrylic ester are substituted with a group having no radical reactivity. The lithium **battery** comprising the **electrolyte** of the present invention has a significantly improved charge-discharge and cycle life characteristics, recovery capacity ratio at high temp., and swelling inhibition properties.

IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone  
 78-67-1, 2,2'-Azobisisobutyronitrile 126-33-0,  
 Tetramethylene sulfone 127-63-9, Phenyl sulfone  
 620-32-6, Benzyl sulfone  
 (electrolyte for lithium **battery**)

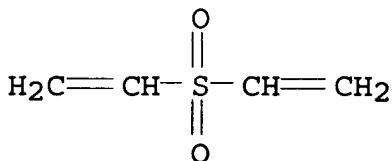
RN 67-71-0: HCA

CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)



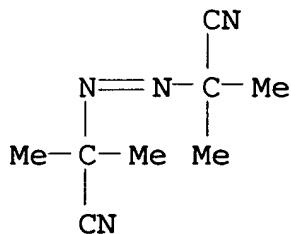
RN 77-77-0 HCA

CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)

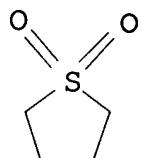


RN 78-67-1 HCA

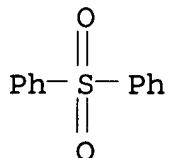
CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



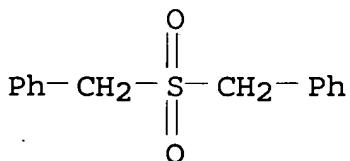
RN 126-33-0 HCA  
 CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



RN 127-63-9 HCA  
 CN Benzene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



RN 620-32-6 HCA  
 CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (9CI) (CA INDEX NAME)



IC ICM H01M010-40  
 INCL 429326000; 429329000; 429339000; 429340000  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 38  
 ST lithium battery electrolyte  
 IT Battery electrolytes  
 (electrolyte for lithium battery)  
 IT Aromatic hydrocarbons, uses

Carbonates, uses  
Esters, uses  
Ethers, uses  
Ketones, uses  
    (electrolyte for lithium battery)  
IT Azo compounds  
    (electrolyte for lithium battery)  
IT Carbonaceous materials (technological products)  
    (electrolyte for lithium battery)  
IT Sulfones  
    (electrolyte for lithium battery)  
IT Polyesters, uses  
    (hydroxy-terminated; electrolyte for lithium battery)  
IT Secondary batteries  
    (lithium; electrolyte for lithium battery)  
IT Polyesters, uses  
    (methacrylate; electrolyte for lithium battery  
    )  
IT Peroxides, uses  
    (org., C3-30; electrolyte for lithium battery  
    )  
IT Esters, uses  
    (poly-; electrolyte for lithium battery)  
IT Imides  
Sulfonic acids, uses  
    (sulfonimides, perfluoro derivs., lithium salts;  
    electrolyte for lithium battery)  
IT 56-81-5, Glycerol, uses 71-43-2, Benzene, uses 96-49-1, Ethylene  
carbonate 98-95-3, Nitrobenzene, uses 105-58-8, Diethyl  
carbonate 108-32-7, Propylene carbonate 108-88-3, Toluene, uses  
108-90-7, Chlorobenzene, uses 149-32-6, Erythritol 462-06-6,  
Fluorobenzene 616-38-6, Dimethyl carbonate 623-53-0, Methylethyl  
carbonate 623-96-1, Dipropyl carbonate 1330-20-7, Xylene, uses  
4437-85-8, Butylene carbonate 7790-99-0, Iodine chloride (ICl)  
7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide (LiI)  
14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium  
tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate  
21324-40-3, Lithium hexafluorophosphate 27359-10-0,  
Trifluorotoluene 29935-35-1, Lithium hexafluoroarsenate  
33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate,  
uses 39300-70-4, Lithium nickel oxide 56525-42-9, Methyl propyl  
carbonate, uses 90076-65-6 131651-65-5, Lithium  
nonafluorobutanesulfonate 162684-16-4, Lithium manganese nickel  
oxide 193215-00-8, Cobalt lithium manganese nickel oxide  
Co0.1LiMn0.2Ni0.7O2  
    (electrolyte for lithium battery)  
IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone

78-67-1, 2,2'-Azobisisobutyronitrile 94-36-0, Benzoyl peroxide, uses 105-64-6, Diisopropyl peroxy dicarbonate 105-74-8, Lauroyl peroxide 126-33-0, Tetramethylene sulfone 127-63-9, Phenyl sulfone 620-32-6, Benzyl sulfone 1561-49-5, Dicyclohexylperoxy dicarbonate 1712-87-4, m-Toluoyl peroxide 3006-82-4, tert-Butylperoxy-2-ethyl hexanoate 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl)peroxy dicarbonate 26748-41-4 28452-93-9, Butadiene sulfone 32752-09-3, Isobutyl peroxide 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide

(electrolyte for lithium battery)

IT 79-10-7DP, Acrylic acid, reaction product with dipentaerythritol and  $\epsilon$ -caprolactone and butylcarbonic acid 126-58-9DP, Dipentaerythritol, reaction product with  $\epsilon$ -caprolactone and acrylic acid and butylcarbonic acid 502-44-3DP,  $\epsilon$ -Caprolactone, reaction product with dipentaerythritol and acrylic acid and butylcarbonic acid 10411-26-4DP, MonoButylcarbonate, reaction product with dipentaerythritol and  $\epsilon$ -caprolactone and acrylic acid

(electrolyte for lithium battery)

L71 ANSWER 5 OF 6 HCA COPYRIGHT 2007 ACS on STN

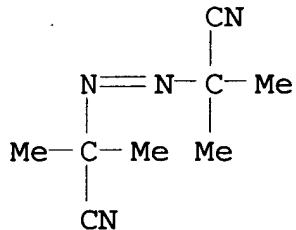
126:114265 Toxicity assessment of the samples from water environment using cultured mammalian cells. Kunimoto, Manabu; Yasuhara, Akio; Soma, Yuko; Nakasugi, Osami (Environmental Health Sciences Division, National Institute Environmental Studies, Tsukuba, 305, Japan). Mizu Kankyo Gakkaishi, 19(11), 855-860 (English) 1996. CODEN: MKGAEY. ISSN: 0916-8958. Publisher: Nippon Mizu Kankyo Gakkai.

AB To evaluate the toxicity other than mutagenicity or carcinogenicity present in the water environment, in vitro cytotoxicity tests using cultured mammalian cells were utilized. Cytotoxicity was estd. based on the changes in viable cell nos. of primary rat cerebellar cells, rat pheochromocytoma cell PC 12h, and normal rat kidney epithelial cell NRK-52E. Evaluation of these in vitro systems was performed by testing ref. chems. proposed by MEIC (Multicenter Evaluation of In Vitro Cytotoxicity), an international program for the validation of in vitro cytotoxicity tests. When cells in culture were exposed to landfill leachate for 48 h, viable cell nos. decreased dose dependently. However, fractions prep'd. by condensation and extn. from the leachates showed much less effects on the viable cell nos. Their individual cytotoxicity did not account for that of unfractionated leachate, suggesting that component(s) with higher cytotoxicity may not be successfully recovered during the condensation and extn. process. Among the silica-gel column fractions of acetone-exts. of sediment samples, fractions eluted with acetone showed the highest cytotoxicity. These results indicate that the cytotoxicity of water samples like landfill

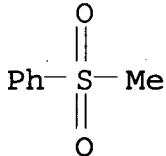
leachates or of their exts. can be detected with the present assay system but toxic components may not be recovered quant. during the condensation and extn. process.

IT 78-67-1,  $\alpha,\alpha'$ -Azobis(isobutyronitrile)  
 3112-85-4, Methyl phenyl sulfone  
 (toxicity assessment of the samples from water environment using cultured mammalian cells)

RN 78-67-1 HCA  
 CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



RN 3112-85-4 HCA  
 CN Benzene, (methylsulfonyl)- (CA INDEX NAME)



CC 4-1 (Toxicology)  
 Section cross-reference(s): 61

IT 50-06-6, Phenobarbital, biological studies 50-48-6, Amitriptyline  
 50-54-4, Quinidine sulfate 50-63-5, Chloroquine phosphate  
 50-78-2, Acetyl salicylic acid 54-11-5, Nicotine 54-85-3,  
 Isoniazid 55-48-1, Atropine sulfate 56-23-5, biological studies  
 56-75-7, Chloramphenicol 57-41-0, Phenytoin 58-08-2, Caffeine,  
 biological studies 58-55-9, Theophylline, biological studies  
 58-89-9, Lindane 60-13-9, Amphetamine sulfate 62-76-0, Sodium  
 oxalate 64-17-5, Ethanol, biological studies 67-56-1, Methanol,  
 biological studies 67-63-0, Isopropyl alcohol, biological studies  
 67-66-3, Chloroform, biological studies 70-30-4, Hexachlorophene  
 71-55-6, 1,1,1-Trichloroethane 75-09-2, Dichloromethane,  
 biological studies 78-67-1,  $\alpha,\alpha'$ -  
 Azobis(isobutyronitrile) 81-81-2, Warfarin 84-74-2, Dibutyl  
 phthalate 87-86-5, Pentachlorophenol 94-75-7, biological studies  
 103-90-2 106-46-7, 1,4-Dichlorobenzene 107-21-1, 1,2-Ethanediol,  
 biological studies 108-95-2, Phenol, biological studies  
 110-67-8, 3-Methoxypropanenitrile 110-88-3, Trioxane, biological

studies 111-76-2, 2-Butoxyethanol 112-49-2, Triethylene glycol dimethyl ether 115-96-8, Tris(2-chloroethyl)phosphate 121-75-5 123-91-1, 1,4-Dioxane, biological studies 127-19-5 130-61-0, Thioridazine hydrochloride 151-50-8, Potassium cyanide 152-11-4, Verapamil hydrochloride 318-98-9, Propranolol hydrochloride 341-69-5, Orphenadrine hydrochloride 439-14-5, Diazepam 469-62-5, Dextropropoxyphene 615-58-7, 2,4-Dibromophenol 632-22-4, Tetramethylurea 1327-53-3, Arsenic trioxide 1330-20-7, Xylene, biological studies 3112-85-4, Methyl phenyl sulfone 4320-85-8 4685-14-7, Paraquat 6970-56-5 7326-46-7, Tetrahydro-2-methyl-2-furanol 7446-18-6, Thallium sulfate 7447-40-7, Potassium chloride, biological studies 7487-94-7, Mercuric chloride, biological studies 7647-14-5, Sodium chloride (NaCl), biological studies 7681-49-4, Sodium fluoride, biological studies 7720-78-7, Ferrous sulfate 7758-98-7, Cupric sulfate, biological studies 10022-31-8, Barium nitrate 10377-48-7, Lithium sulfate 13423-22-8 20830-75-5, Digoxin 37306-44-8, Triazole 53778-61-3 54063-15-9 74498-88-7, 1-Methoxy-2-(methoxymethoxy)ethane  
(toxicity assessment of the samples from water environment using cultured mammalian cells)

L71 ANSWER 6 OF 6 HCA COPYRIGHT 2007 ACS on STN

126:92052 Catalyst-containing solid **electrolytes** and batteries using these **electrolytes**.

Chaloner-Gill, Benjamin; Olsen, Ib I.; Saidi, Eileen S. (USA). U.S. US 5580680 A 19961203, 8 pp. (English). CODEN: USXXAM.

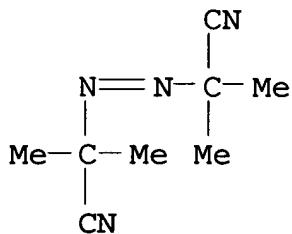
APPLICATION: US 1994-267066 19940627.

AB The **electrolytes** include a 1st catalyst that is capable of initiating the polymn. of solvent components at elevated temps. to increase the resistance (or impedance) of the solid **electrolyte** and thereby prevent thermal runaway and/or a 2nd catalyst that is capable of initiating the polymn. of flammable substances (e.g., olefins) in the solvent. To assure that the catalysts do not prematurely initiate polymn. below a certain temp., the catalysts may be microencapsulated within a heat-sensitive material that disintegrates or dissolve at a predetd. elevated temp. to release the catalysts. Microencapsulation permits the controlled release of the catalysts into the **electrolyte** under the appropriate conditions.

IT 78-67-1, Azobisisobutyronitrile  
(polymn. catalyst for **battery** solid **electrolytes**)

RN 78-67-1 HCA

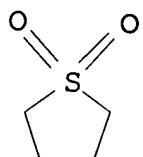
CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



IT 126-33-0, Sulfolane  
(polymn. catalyst for **battery** solid  
**electrolytes** contg. solvent of)

RN 126-33-0 HCA

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



IC ICM H01M006-16

INCL 429192000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 37

ST **battery** solid **electrolyte** solvent polymn  
catalyst; flammable substance polymn catalyst **battery**  
**electrolyte**; safety **battery** polymn catalyst  
**electrolyte**

IT Polymerization catalysts  
(Ziegler-Natta; for **battery** solid **electrolytes**  
)

IT Polymerization catalysts  
(**battery** solid **electrolytes** contg.)

IT **Battery electrolytes**  
(contg. polymn. catalyst)

IT **Secondary batteries**  
(lithium; with polymn. catalysts for safety)

IT Safety  
(of lithium **batteries** with polymn. catalysts-contg.  
solid **electrolytes**)

IT Bronsted acids  
(polymn. catalyst for **battery** solid  
**electrolytes**)

IT 78-67-1, Azobisisobutyronitrile 94-36-0, Benzoyl peroxide,  
uses 110-22-5, Acetyl peroxide 7440-23-5, Sodium, uses

7637-07-2, Boron trifluoride, uses  
(polymn. catalyst for **battery** solid  
**electrolytes**)

IT 67-68-5, uses 96-48-0,  $\gamma$ -Butyrolactone 96-49-1, Ethylene  
carbonate 108-32-7, Propylene carbonate 110-71-4, Glyme  
111-96-6, Diglyme 112-49-2, Triglyme 126-33-0, Sulfolane  
143-24-8, Tetraglyme 646-06-0, Dioxolane  
(polymn. catalyst for **battery** solid  
**electrolytes** contg. solvent of)

=>

=> D L72 1-6 CBIB ABS HITSTR HITIND

L72 ANSWER 1 OF 6 HCA COPYRIGHT 2007 ACS on STN

146:145946 **Electrolyte** for lithium secondary **battery**

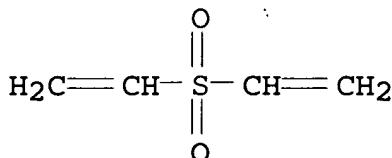
Kim, Cheonsoo (Samsung Sdi Co., Ltd., S. Korea). U.S. Pat. Appl. Publ. US 2007009806 A1 20070111, 11pp. (English). CODEN: USXXCO. APPLICATION: US 2006-481911 20060707. PRIORITY: KR 2005-61409 20050707.

AB The invention concerns an **electrolyte** for a lithium secondary **battery** and a lithium secondary **battery** having the **electrolyte**, the **electrolyte** including a lithium salt; a non-aq. org. solvent including  $\gamma$ -butyrolactone-; and a succinic anhydride.

IT 77-77-0, Divinyl sulfone  
(**electrolyte** for lithium secondary **battery**)

RN 77-77-0 HCA

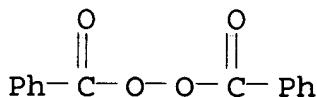
CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



IT 94-36-0, Dibenzoyl peroxide, reactions 105-64-6, Di-isopropyl peroxydicarbonate 105-74-8, Dilauroyl peroxide 3006-82-4, tert-Butylperoxy-2-ethyl hexanoate 15520-11-3, Bis(4-tert-butylcyclohexyl) peroxydicarbonate (**electrolyte** for lithium secondary **battery**)

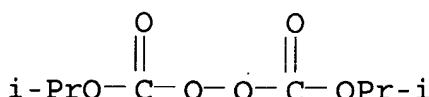
RN 94-36-0 HCA

CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



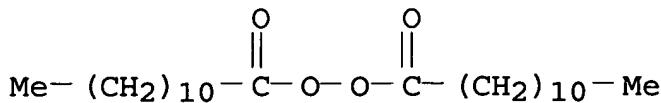
RN 105-64-6 HCA

CN Peroxydicarbonic acid, bis(1-methylethyl) ester (9CI) (CA INDEX NAME)



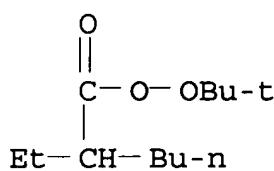
RN 105-74-8 HCA

CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



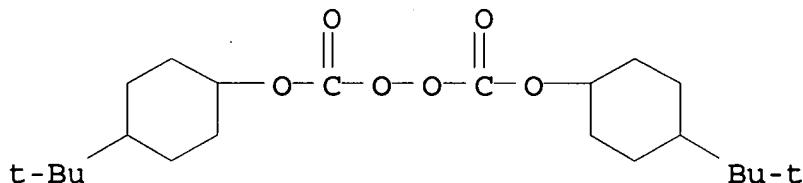
RN 3006-82-4 HCA

CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



RN 15520-11-3 HCA

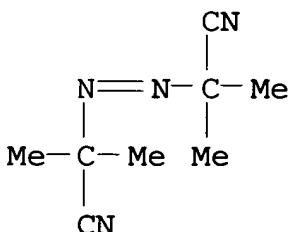
CN Peroxydicarbonic acid, bis[4-(1,1-dimethylethyl)cyclohexyl] ester  
(9CI) (CA INDEX NAME)



IT 78-67-1, 2,2'-Azo-bis(isobutyronitrile)  
(electrolyte for lithium secondary battery)

RN 78-67-1 HCA

CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



INCL 429329000; 429332000; 429200000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

## ST electrolyte lithium secondary battery

## IT Battery electrolytes

- (electrolyte for lithium secondary battery)
- IT Aromatic hydrocarbons, uses  
 Esters, uses  
 Ethers, uses  
 Ketones, uses
- (electrolyte for lithium secondary battery)
- IT Secondary batteries  
 (lithium; electrolyte for lithium secondary battery)
- IT 77-77-0, Divinyl sulfone 96-48-0,  $\gamma$ -Butyrolactone  
 108-30-5, Succinic anhydride, uses 872-36-6, Vinylene carbonate  
 3741-38-6, Ethylene sulfite 25721-76-0, Poly(ethylene glycol)  
 dimethacrylate 26570-48-9, Poly(ethylene glycol)  
 diacrylate 49717-87-5, uses 919110-87-5
- (electrolyte for lithium secondary battery)
- IT 94-36-0, Dibenzoyl peroxide, reactions 105-64-6,  
 Di-isopropyl peroxydicarbonate 105-74-8, Dilauroyl  
 peroxide 107-71-1, tert-Butyl peroxy acetate 109-13-7,  
 tert-Butyl peroxy isobutyrate 110-22-5, Diacetyl peroxide  
 614-45-9, tert-Butyl peroxy benzoate 686-31-7, tert-Amylperoxy  
 2-ethyl hexanoate 927-07-1, tert-Butyl peroxy pivalate 2372-21-6,  
 tert-Butyl peroxy isopropyl carbonate 3006-82-4,  
 tert-Butylperoxy-2-ethyl hexanoate 3851-87-4, Bis(3,5,5-  
 trimethylhexanoyl) peroxide 13122-18-4 15518-51-1, Diethylene  
 glycol bis(tert-butyl peroxy carbonate) 15520-11-3,  
 Bis(4-tert-butylcyclohexyl) peroxydicarbonate 16111-62-9,  
 Di-2-ethylhexyl peroxy dicarbonate 26748-38-9, tert-Butyl peroxy  
 neoheptanoate 29240-17-3, tert-Amyl peroxy pivalate 34443-12-4,  
 tert-Butyl peroxy-2-ethylhexyl carbonate 36536-42-2 51938-28-4,  
 tert-Hexyl peroxy pivalate 52238-68-3 68860-54-8 919110-90-0
- (electrolyte for lithium secondary battery)
- IT 71-43-2, Benzene, uses 78-67-1, 2,2'-Azo-  
 bis(isobutyronitrile) 96-49-1, Ethylene carbonate 105-58-8,  
 Diethyl carbonate 108-32-7, Propylene carbonate 108-67-8,  
 Mesitylene, uses 108-86-1, Bromobenzene, uses 108-88-3, Toluene,  
 uses 108-90-7, Chlorobenzene, uses 462-06-6, Fluorobenzene  
 463-79-6D, Carbonic acid, ester 616-38-6, Dimethyl carbonate  
 623-53-0, EthylMethyl carbonate 623-96-1, Dipropyl carbonate  
 1330-20-7, Xylene, uses 2094-98-6 4419-11-8,  
 2,2'-Azo-bis(2,4-dimethyl valeronitrile) 4437-70-1, 2,3-Butylene  
 carbonate 4437-85-8, 1,2-Butylene carbonate 4437-86-9  
 7447-41-8, Lithium chloride, uses 7791-03-9, Lithium perchlorate  
 10377-51-2, Lithium iodide 14024-11-4, Lithium  
 tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate  
 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium  
 hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate  
 33454-82-9, Lithium triflate 35363-40-7, Ethylpropyl carbonate  
 37220-89-6, Aluminum lithium oxide 56525-42-9, Methylpropyl

carbonate 89489-56-5, 1,2-Pentylene carbonate 90076-65-6  
 114435-02-8, Fluoroethylene carbonate 131651-65-5  
 (electrolyte for lithium secondary battery)

L72 ANSWER 2 OF 6 HCA COPYRIGHT 2007 ACS on STN

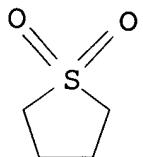
140:256340 Anodes for lithium **battery**. Kim, Yong-tae; Choi, Su-suk; Choi, Yun-suk; Lee, Kyoung-hee (Samsung Sdi Co., Ltd., S. Korea). U.S. Pat. Appl. Publ. US 2004058232 A1 20040325, 10 pp. (English). CODEN: USXXCO. APPLICATION: US 2003-664157 20030917. PRIORITY: KR 2002-57577 20020923.

AB A lithium neg. electrode for a lithium **battery** has good cycle life and capacity characteristics. The lithium neg. electrode comprises a lithium metal layer and a protective layer present on the lithium metal layer, where the protective layer includes an organosulfur compd. An organosulfur compd. having a thiol terminal group is preferred since such a compd. can form a complex with lithium metal to enable coating to be carried out easily. The organosulfur compd. has a large no. of S or N elements having high electronegativity to form a complex with lithium ions, so it renders lithium ions to be deposited relatively evenly on the lithium metal surface, reducing dendrite formation.

IT 126-33-0, Sulfolane  
 (anodes for lithium **battery**)

RN 126-33-0 HCA

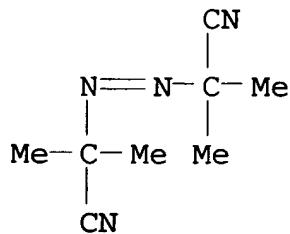
CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



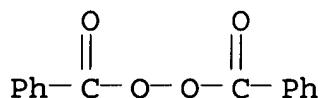
IT 78-67-1, Azobisisobutyronitrile 94-36-0, Dibenzoyl peroxide, uses 105-74-8, Dilauroyl peroxide  
 (anodes for lithium **battery**)

RN 78-67-1 HCA

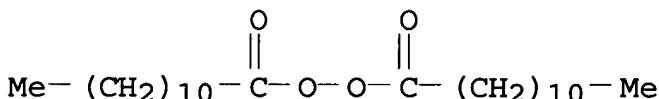
CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



RN 94-36-0 HCA  
 CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



RN 105-74-8 HCA  
 CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



IC ICM H01M002-16  
 ICS H01M004-66; H01M004-40  
 INCL 429137000; 429246000; 429245000; 429212000; 429231950  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 38  
 ST anode lithium **battery**  
 IT Chalcogenides  
 Oxides (inorganic), uses  
 (Li-contg.; anodes for lithium **battery**)  
 IT Peroxides, uses  
 (acyl; anodes for lithium **battery**)  
 IT Hydroperoxides  
 (alkyl, tertiary; anodes for lithium **battery**)  
 IT Peroxides, uses  
 (alkyl; anodes for lithium **battery**)  
 IT **Battery** anodes  
 Coating materials  
 Conducting polymers  
 (anodes for lithium **battery**)  
 IT Acrylic polymers, uses  
 Polyanilines  
 Polyoxyalkylenes, uses  
 (anodes for lithium **battery**)  
 IT Amino acids, uses  
 Halogens  
 Lewis acids  
 Rare earth chlorides  
 Sulfonic acids, uses  
 Transition metal compounds  
 (dopant; anodes for lithium **battery**)  
 IT Primary **batteries**  
 Secondary **batteries**

- (lithium; anodes for lithium **battery**)
- IT Esters, uses  
Ketals  
    (peroxy; anodes for lithium **battery**)
- IT Crown ethers  
Polybenzimidazoles  
Polyquinolines  
Polyquinoxalines  
    (thiophenes, polymers; anodes for lithium **battery**)
- IT 110-71-4 111-96-6, Diglyme 126-33-0, Sulfolane  
646-06-0, 1,3-Dioxolane 7439-93-2, Lithium, uses 7704-34-9,  
Sulfur, uses  
    (anodes for lithium **battery**)
- IT 67-63-0, Isopropyl alcohol, uses 75-91-2, tert-Butyl hydroperoxide  
78-63-7, 2,5-Dimethyl-2,5-di-(tert-butyperoxy)hexane  
78-67-1, Azobisisobutyronitrile 80-15-9, Cumene  
hydroperoxide 80-43-3, Dicumyl peroxide 94-36-0,  
Dibenzoyl peroxide, uses 105-74-8, Dilauroyl peroxide  
110-05-4, Di-tert-butyl peroxide 123-23-9, Succinic acid peroxide  
762-12-9, Didecanoyl peroxide 927-07-1, tert-Butylperoxypivalate  
2167-23-9, 2,2-Di-(tert-butyperoxy)butane 3025-88-5,  
2.5-Dihydroperoxy-2,5-dimethylhexane 4511-39-1,  
tert-Amylperoxybenzoate 15667-10-4, 1,1-Di-(tert-  
amylperoxy)cyclohexane 16066-38-9, Di(n-propyl)peroxy dicarbonate  
16111-62-9, Di(2-ethylhexyl)peroxy dicarbonate 19910-65-7,  
Di(sec-butyl)peroxy dicarbonate 24937-05-1, Poly(ethyleneadipate)  
24938-43-0, Poly( $\beta$ -propiolactone) 24969-06-0,  
Polyepichlorohydrin 25190-62-9, Poly(p-phenylene) 25233-30-1,  
Polyaniline 25233-30-1D, Polyaniline, sulfonated 25233-34-5,  
Polythiophene 25233-34-5D, Polythiophene, derivs. 25322-68-3,  
Peo 25322-69-4, Polypropylene oxide 25667-11-2,  
Poly(ethylenesuccinate) 25721-76-0, Polyethylene glycol  
dimethacrylate 25852-49-7, Polypropylene glycol  
dimethacrylate 26570-48-9, Poly(ethylene glycol  
diacrylate) 26748-47-0,  $\alpha$ -Cumylperoxyneodecanoate  
34099-48-4, Peroxydicarbonate 52496-08-9, Poly(  
propyleneglycoldiacrylate) 55794-20-2, Ethyl  
3,3-di-(tert-butyperoxy)butyrate 95732-35-7 97332-10-0,  
Poly(N-propylaziridine) 139096-57-4, Isoquinoline homopolymer  
172973-34-1  
    (anodes for lithium **battery**)
- IT 865-44-1, Iodine trichloride 1493-13-6, Triflic acid 7446-11-9,  
Sulfur trioxide, uses 7550-45-0, Titanium chloride (TiCl<sub>4</sub>) (T-4)-,  
uses 7553-56-2, Iodine, uses 7601-90-3, Perchloric acid, uses  
7637-07-2, uses 7647-01-0, Hydrochloric acid, uses 7647-19-0,  
Phosphorus pentafluoride 7664-39-3, Hydrofluoric acid, uses  
7664-93-9, Sulfuric acid, uses 7697-37-2, Nitric acid, uses  
7705-08-0, Ferric chloride, uses 7721-01-9, Tantalum chloride

(TaCl<sub>5</sub>) 7726-95-6, Bromine, uses 7782-44-7, Oxygen, uses 7782-50-5, Chlorine, uses 7783-68-8, Niobium fluoride nbf5 7783-70-2, Antimony pentafluoride 7783-81-5 7783-82-6 7783-93-9, Silver perchlorate 7784-36-3, Arsenic pentafluoride 7789-21-1, Fluorosulfonic acid 7789-33-5, Iodine monobromide 7790-94-5, Chlorosulfonic acid 7790-99-0, Iodine monochloride 10026-11-6 10026-12-7, Niobium chloride (NbCl<sub>5</sub>) 10277-43-7, Lanthanum nitrate hexahydrate 10294-33-4, Boron tribromide 10294-34-5 13283-01-7 13499-05-3 13709-32-5, Bis(fluorosulfonyl)peroxide 13774-85-1 13819-84-6, Molybdenum fluoride mof5 13870-10-5, Iron chloride oxide feocl 13873-84-2, Iodine monofluoride 14635-75-7, Nitrosyl tetrafluoroborate 14797-73-0, Perchlorate 14874-70-5, Tetrafluoroborate 16871-80-0, Nitrosyl hexachloroantimonate 16887-00-6, Chloride, uses 16919-18-9, Hexafluorophosphate 16941-92-7, Hexachloroiridic acid 16973-45-8, Hexafluoroarsenate 17111-95-4 17856-92-7 20461-54-5, Iodide, uses 24959-67-9, Bromide, uses 25321-43-1, Octylbenzenesulfonic acid 27176-87-0, Dodecylbenzene sulfonic acid

(dopant; anodes for lithium **battery**)

IT 540-63-6, 1,2-Ethanedithiol 1072-71-5, 2,5-Dimercapto-1,3,4-thiadiazole 2001-93-6, 2,4-Dimercaptopyrimidine 2150-02-9, Bis(2-mercaptoethyl)ether 3570-55-6, Bis(2-mercaptoethyl)sulfide 9002-98-6 9002-98-6D, derivs. 37306-44-8D, Triazole, mercapto derivs 131538-50-6 135886-78-1 135886-79-2

(protective coating; anodes for lithium **battery**)

IT 7704-34-9D, Sulfur, organosulfur compd.

(protective layer; anodes for lithium **battery**)

IT 273-77-8, 1,2,3-Benzothiadiazole 612-79-3, 6,6'-Biquinoline 25013-01-8, Polypyridine 25013-01-8D, Polypyridine, derivs. 26856-35-9, Dihydrophenanthrene 27986-50-1, Poly(1,3-cyclohexadiene) 30604-81-0, Polypyrrole 30604-81-0D, Polypyrrole, derivs. 51937-67-8, Polyferrocene 71730-08-0, Polyanthraquinone 136902-52-8, 2,2'-Bipyridine homopolymer 136902-52-8D, 2,2'-Bipyridine homopolymer, derivs. 190201-51-5, Pyrimidine homopolymer 190201-57-1, 1,5-Naphthyridine homopolymer (thiophenes, polymers; anodes for lithium **battery**)

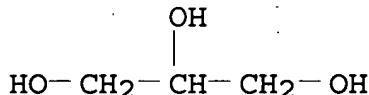
L72 ANSWER 3 OF 6 HCA COPYRIGHT 2007 ACS on STN

140:238483 **Electrolyte** for a lithium **battery**. Park, Yong-Chul; Jung, Won-Ii; Kim, Geun-Bae; Cho, Jae-Phil; Jung, Cheol-Soo (S. Korea). U.S. Pat. Appl. Publ. US 2004048163 A1 20040311, 13 pp. (English). CODEN: USXXCO. APPLICATION: US 2003-656086 20030905. PRIORITY: KR 2002-53879 20020906.

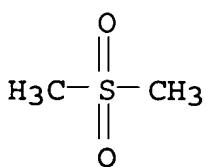
AB An **electrolyte** for a lithium **battery** includes a nonaq. org. solvent, a lithium salt, and an additive comprising (a) a sulfone-based compd. and (b) a C3-30 org. peroxide or azo-based compd. The **electrolyte** may further include a

poly(ester) (meth)acrylate or a polymer that is derived from a (polyester)polyol with at least three hydroxyl (-OH) groups, where a portion or all of the hydroxyl groups are substituted with a (meth)acrylic ester and the remaining hydroxyl groups that are not substituted with the (meth)acrylic ester are substituted with a group having no radical reactivity. The lithium **battery** comprising the **electrolyte** of the present invention has a significantly improved charge-discharge and cycle life characteristics, recovery capacity ratio at high temp., and swelling inhibition properties.

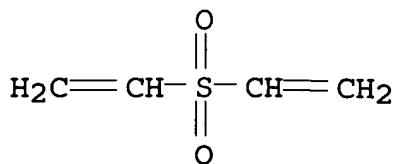
IT 56-81-5, Glycerol, uses  
 (electrolyte for lithium **battery**)  
 RN 56-81-5 HCA  
 CN 1,2,3-Propanetriol (CA INDEX NAME)



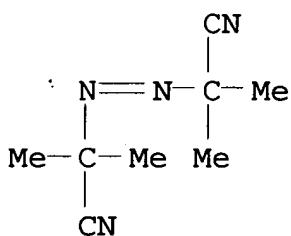
IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone  
 78-67-1, 2,2'-Azobisisobutyronitrile 94-36-0,  
 Benzoyl peroxide, uses 105-64-6, Diisopropyl peroxy  
 dicarbonate 105-74-8, Lauroyl peroxide 126-33-0,  
 Tetramethylene sulfone 127-63-9, Phenyl sulfone  
 620-32-6, Benzyl sulfone 1561-49-5,  
 Dicyclohexylperoxy dicarbonate 1712-87-4, m-Toluoyl  
 peroxide 3006-82-4, tert-Butylperoxy-2-ethyl hexanoate  
 14666-78-5 15520-11-3, Bis(4-tert-  
 butylcyclohexyl)peroxy dicarbonate 26748-41-4  
 32752-09-3, Isobutyl peroxide 92177-99-6,  
 3,3,5-Trimethylhexanoyl peroxide  
 (electrolyte for lithium **battery**)  
 RN 67-71-0 HCA  
 CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)



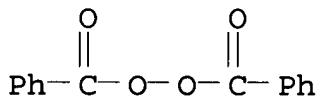
RN 77-77-0 HCA  
 CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



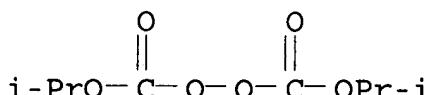
RN 78-67-1 HCA  
 CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



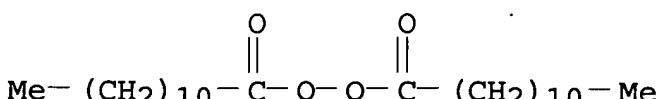
RN 94-36-0 HCA  
 CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



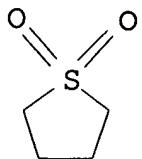
RN 105-64-6 HCA  
 CN Peroxydicarbonic acid, bis(1-methylethyl) ester (9CI) (CA INDEX NAME)



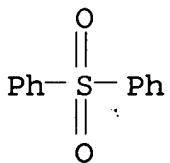
RN 105-74-8 HCA  
 CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



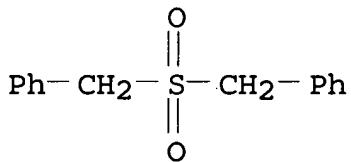
RN 126-33-0 HCA  
 CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



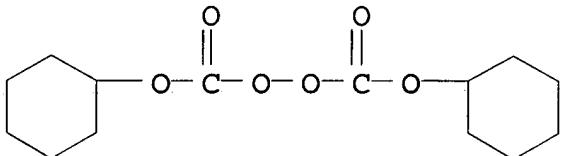
RN 127-63-9 HCA  
 CN Benzene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



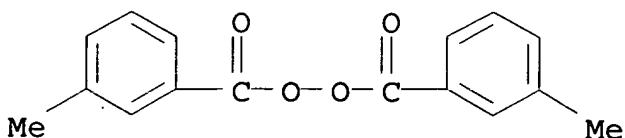
RN 620-32-6 HCA  
 CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (9CI) (CA INDEX NAME)



RN 1561-49-5 HCA  
 CN Peroxydicarbonic acid, dicyclohexyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)

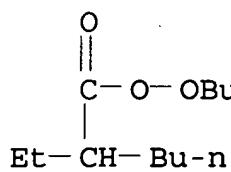


RN 1712-87-4 HCA  
 CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



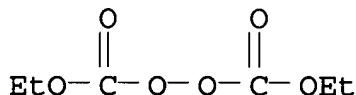
RN 3006-82-4 HCA

CN Hexaneperoxyic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



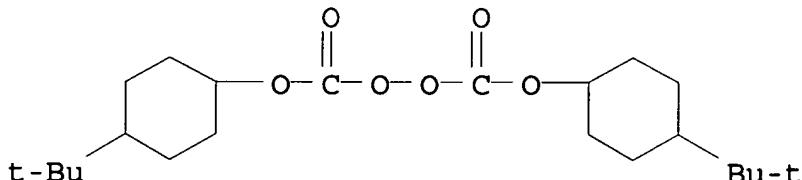
RN 14666-78-5 HCA

CN Peroxydicarbonic acid, diethyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



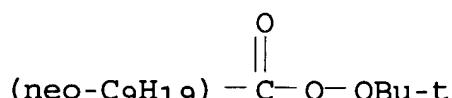
RN 15520-11-3 HCA

CN Peroxydicarbonic acid, bis[4-(1,1-dimethylethyl)cyclohexyl] ester (9CI) (CA INDEX NAME)



RN 26748-41-4 HCA

CN Neodecaneperoxyic acid, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



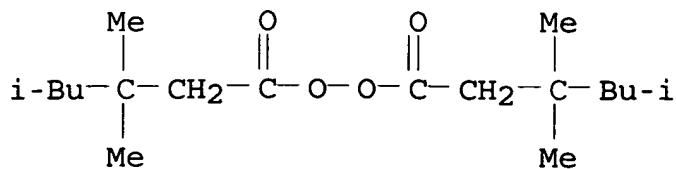
RN 32752-09-3 HCA

CN Peroxide, bis(2-methylpropyl) (CA INDEX NAME)

i-Bu-O-O-Bu-i

RN 92177-99-6 HCA

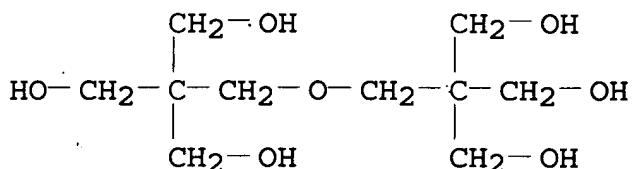
CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



IT 126-58-9DP, Dipentaerythritol, reaction product with  $\epsilon$ -caprolactone and acrylic acid and butylcarbonic acid  
 (electrolyte for lithium battery)

RN 126-58-9 HCA

CN 1,3-Propanediol, 2,2'-[oxybis(methylene)]bis[2-(hydroxymethyl)- (9CI) (CA INDEX NAME)



IC ICM H01M010-40

INCL 429326000; 429329000; 429339000; 429340000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 38

ST lithium battery electrolyte

IT Battery electrolytes

(electrolyte for lithium battery)

IT Aromatic hydrocarbons, uses

Carbonates, uses

Esters, uses

Ethers, uses

Ketones, uses

(electrolyte for lithium battery)

IT Azo compounds

(electrolyte for lithium battery)

IT Carbonaceous materials (technological products)

(electrolyte for lithium battery)

IT Sulfones

(electrolyte for lithium battery)

IT Polyesters, uses

(hydroxy-terminated; electrolyte for lithium battery)

IT Secondary batteries

(lithium; electrolyte for lithium battery)

IT Polyesters, uses

- (methacrylate; **electrolyte** for lithium battery)
- IT Peroxides, uses  
(org., C3-30; **electrolyte** for lithium **battery**)
- IT Esters, uses  
(poly-; **electrolyte** for lithium **battery**)
- IT Imides
- Sulfonic acids, uses  
(sulfonimides, perfluoro derivs., lithium salts;  
**electrolyte** for lithium **battery**)
- IT 56-81-5, Glycerol, uses 71-43-2, Benzene, uses 96-49-1,  
Ethylene carbonate 98-95-3, Nitrobenzene, uses 105-58-8, Diethyl  
carbonate 108-32-7, Propylene carbonate 108-88-3, Toluene, uses  
108-90-7, Chlorobenzene, uses 149-32-6, Erythritol 462-06-6,  
Fluorobenzene 616-38-6, Dimethyl carbonate 623-53-0, Methylethyl  
carbonate 623-96-1, Dipropyl carbonate 1330-20-7, Xylene, uses  
4437-85-8, Butylene carbonate 7790-99-0, Iodine chloride (ICl)  
7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide (LiI)  
14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium  
tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate  
21324-40-3, Lithium hexafluorophosphate 27359-10-0,  
Trifluorotoluene 29935-35-1, Lithium hexafluoroarsenate  
33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate,  
uses 39300-70-4, Lithium nickel oxide 56525-42-9, Methyl propyl  
carbonate, uses 90076-65-6 131651-65-5, Lithium  
nonafluorobutanesulfonate 162684-16-4, Lithium manganese nickel  
oxide 193215-00-8, Cobalt lithium manganese nickel oxide  
Co0.1LiMn0.2Ni0.7O2  
(**electrolyte** for lithium **battery**)
- IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone  
78-67-1, 2,2'-Azobisisobutyronitrile 94-36-0,  
Benzoyl peroxide, uses 105-64-6, Diisopropyl peroxy  
dicarbonate 105-74-8, Lauroyl peroxide 126-33-0,  
Tetramethylene sulfone 127-63-9, Phenyl sulfone  
620-32-6, Benzyl sulfone 1561-49-5,  
Dicyclohexylperoxy dicarbonate 1712-87-4, m-Toluoyl  
peroxide 3006-82-4, tert-Butylperoxy-2-ethyl hexanoate  
14666-78-5 15520-11-3, Bis(4-tert-  
butylcyclohexyl)peroxy dicarbonate 26748-41-4  
28452-93-9, Butadiene sulfone 32752-09-3, Isobutyl  
peroxide 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide  
(**electrolyte** for lithium **battery**)
- IT 79-10-7DP, Acrylic acid, reaction product with  
dipentaerythritol and  $\epsilon$ -caprolactone and butylcarbonic acid  
126-58-9DP, Dipentaerythritol, reaction product with  
 $\epsilon$ -caprolactone and acrylic acid and butylcarbonic  
acid 502-44-3DP,  $\epsilon$ -Caprolactone, reaction product with

dipentaerythritol and acrylic acid and butylcarbonic acid 10411-26-4DP, MonoButylcarbonate, reaction product with dipentaerythritol and  $\epsilon$ -caprolactone and acrylic acid

(electrolyte for lithium battery)

L72 ANSWER 4 OF 6 HCA COPYRIGHT 2007 ACS on STN

140:149224 Nonaqueous electrolytic solution with improved safety for lithium battery. Kim, Jun-ho; Lee, Ha-young; Choy, Sang-hoon; Kim, Ho-sung (Samsung SDI Co., Ltd., S. Korea). U.S. Pat. Appl. Publ. US 2004029018 A1 20040212, 12 pp. (English). CODEN: USXXCO. APPLICATION: US 2003-637554 20030811. PRIORITY: KR 2002-47510 20020812.

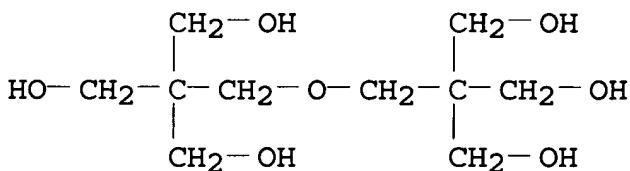
AB. A nonaq. electrolytic soln. and a lithium battery employing the same include a lithium salt, an org. solvent, and a halogenated benzene compd. The use of the nonaq. electrolytic soln. causes formation of a polymer by oxidative decompn. of the electrolytic soln. even if a sharp voltage increase occurs due to overcharging of the battery, leading to consumption of an overcharge current, thus protecting the battery.

IT 126-58-9DP, Dipentaerythritol, deriv.

(nonaq. electrolytic soln. with improved safety for lithium battery)

RN 126-58-9 HCA

CN 1,3-Propanediol, 2,2'-[oxybis(methylene)]bis[2-(hydroxymethyl)-(9CI) (CA INDEX NAME)]

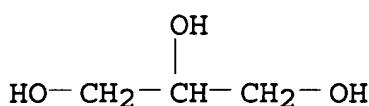


IT 56-81-5, Glycerol, uses 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone 94-36-0, Benzoylperoxide, uses 105-64-6, Diisopropyl peroxy dicarbonate 105-74-8, Lauroyl peroxide 115-77-5, Pentaerythritol, uses 126-33-0, Tetramethylene sulfone 126-58-9, DiPentaerythritol 127-63-9, Phenyl sulfone 620-32-6, Benzyl sulfone 1561-49-5, Dicyclohexyl peroxy dicarbonate 1712-87-4, m-Toluoyl peroxide 3006-82-4, tert-Butylperoxy-2-ethylhexanoate 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl) peroxydicarbonate 32752-09-3, Isobutyl peroxide 92177-99-6, 3,3,5-Trimethylhexanoylperoxide (nonaq. electrolytic soln. with improved safety for

lithium battery)

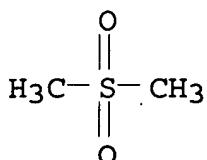
RN 56-81-5 HCA

CN 1,2,3-Propanetriol (CA INDEX NAME)



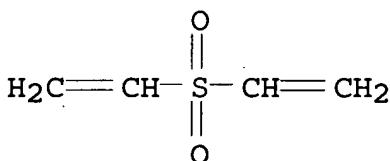
RN 67-71-0 HCA

CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)



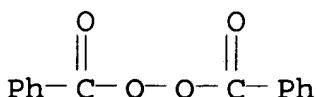
RN 77-77-0 HCA

CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



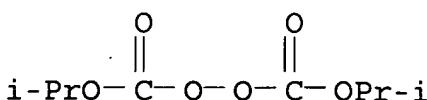
RN 94-36-0 HCA

CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



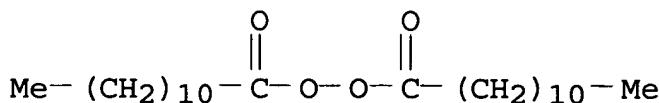
RN 105-64-6 HCA

CN Peroxydicarbonic acid, bis(1-methylethyl) ester (9CI) (CA INDEX NAME)



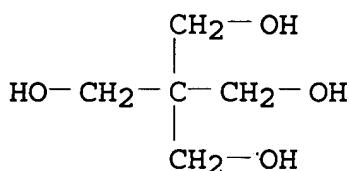
RN 105-74-8 HCA

CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



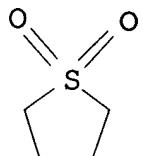
RN 115-77-5 HCA

CN 1,3-Propanediol, 2,2-bis(hydroxymethyl) - (CA INDEX NAME)



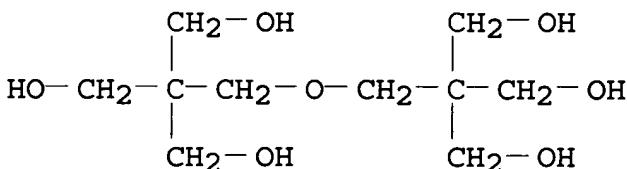
RN 126-33-0 HCA

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



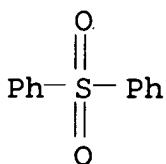
RN 126-58-9 HCA

CN 1,3-Propanediol, 2,2' - [oxybis(methylene)]bis[2 - (hydroxymethyl) - (9CI) (CA INDEX NAME)



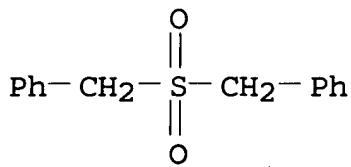
RN 127-63-9 HCA

CN Benzene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



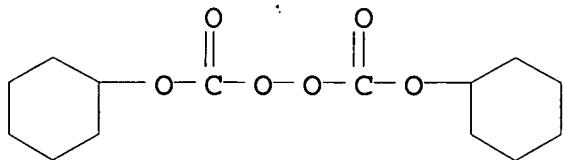
RN 620-32-6 HCA

CN Benzene, 1,1'-(sulfonylbis(methylene))bis- (9CI) (CA INDEX NAME)



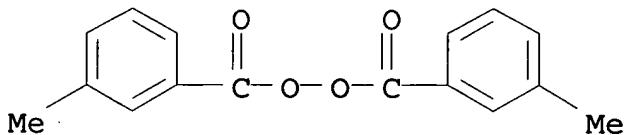
RN 1561-49-5 HCA

CN Peroxydicarbonic acid, dicyclohexyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



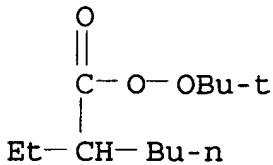
RN 1712-87-4 HCA

CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



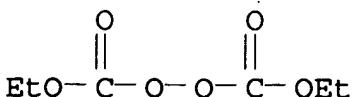
RN 3006-82-4 HCA

CN Hexaneperoxyoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)

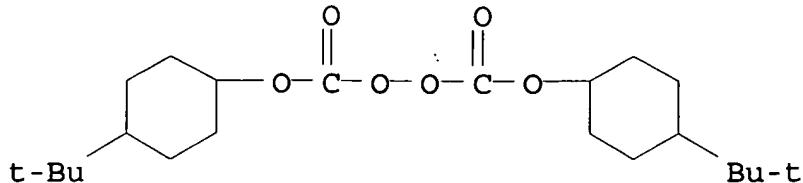


RN 14666-78-5 HCA

CN Peroxydicarbonic acid; diethyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 15520-11-3 HCA

CN Peroxydicarbonic acid, bis[4-(1,1-dimethylethyl)cyclohexyl] ester  
(9CI) (CA INDEX NAME)

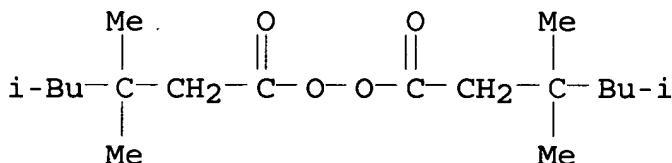
RN 32752-09-3 HCA

CN Peroxide, bis(2-methylpropyl) (CA INDEX NAME)

i-Bu-O-O-Bu-i

RN 92177-99-6 HCA

CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



IC ICM H01M010-40

INCL 429326000; 429200000; 429340000; 429331000; 429332000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium **battery** nonaq **electrolyte** soln improved  
safety

IT Esters, uses

Ethers, uses

Hydrocarbons, uses

(C1-20; nonaq. **electrolytic** soln. with improved safety  
for lithium **battery**)

IT Aromatic hydrocarbons, uses

(C5-20; nonaq. **electrolytic** soln. with improved safety  
for lithium **battery**)IT Secondary **batteries**(lithium; nonaq. **electrolytic** soln. with improved  
safety for lithium **battery**)IT **Battery electrolytes**(nonaq. **electrolytic** soln. with improved safety for  
lithium **battery**)

- IT Polyesters, uses  
(nonaq. **electrolytic** soln. with improved safety for lithium **battery**)
- IT Alcohols, uses  
(**polyhydric**; nonaq. **electrolytic** soln. with improved safety for lithium **battery**)
- IT 3087-37-4, Tetrapropyltitanate  
(nonaq. **electrolytic** soln. with improved safety for lithium **battery**)
- IT 502-44-3,  $\epsilon$ -Caprolactone 7439-93-2D, Lithium, salt  
12190-79-3, Cobalt lithium oxide colio2  
(nonaq. **electrolytic** soln. with improved safety for lithium **battery**)
- IT 126-58-9DP, Dipentaerythritol, deriv.  
(nonaq. **electrolytic** soln. with improved safety for lithium **battery**)
- IT 56-81-5, Glycerol, uses 67-71-0, Methyl sulfone  
71-43-2D, Benzene, halogenated 77-77-0, Vinyl sulfone  
94-36-0, Benzoylperoxide, uses 96-49-1, Ethylene carbonate  
105-64-6, Diisopropyl peroxy dicarbonate 105-74-8,  
Lauroyl peroxide 108-32-7, Propylene carbonate 115-77-5,  
Pentaerythritol, uses 126-33-0, Tetramethylene sulfone  
126-58-9, DiPentaerythritol 127-63-9, Phenyl  
sulfone 456-55-3, Trifluoromethyl phenyl ether 462-06-6,  
Fluorobenzene 620-32-6, Benzyl sulfone 623-53-0, Ethyl  
methyl carbonate 1561-49-5, Dicyclohexyl peroxy  
dicarbonate 1712-87-4, m-Toluoyl peroxide 2972-19-2  
3006-82-4, tert-Butylperoxy-2-ethylhexanoate 9002-88-4,  
Polyethylene 9003-07-0, Polypropylene 14666-78-5  
15520-11-3, Bis(4-tert-butylcyclohexyl) peroxydicarbonate  
21151-56-4, Benzene, 1-chloro-4-(chloromethoxy)- 21324-40-3,  
Lithium hexafluorophosphate 28452-93-9, Butadiene sulfone  
32752-09-3, Isobutyl peroxide 49717-97-7, 2-Propenoic  
acid, 2-methyl-, ion(1-) homopolymer, uses 92177-99-6,  
3,3,5-Trimethylhexanoylperoxide 651294-25-6 651294-26-7  
651294-27-8  
(nonaq. **electrolytic** soln. with improved safety for lithium **battery**)

L72 ANSWER 5 OF 6 HCA COPYRIGHT 2007 ACS on STN  
139:294681 **Electrolyte** for lithium **battery** to reduce  
overcharge and improve electrochemical characteristics. Kim,  
Jun-Ho; Lee, Ha-Young; Choy, Sang-Hoon; Kim, Ho-Sung; Noh,  
Hyeong-Gon (Samsung SDI Co., Ltd., S. Korea). U.S. Pat. Appl. Publ.  
US 2003190529 A1 20031009, 19 pp. (English). CODEN: USXXCO.  
APPLICATION: US 2003-393294 20030321. PRIORITY: KR 2002-18264  
20020403.

AB An **electrolyte** for a lithium **battery** includes a

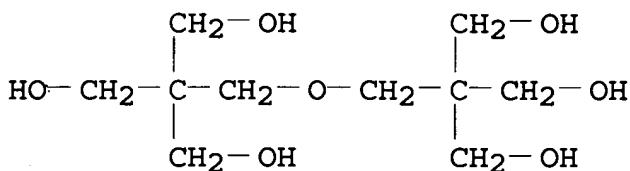
nonaq. org. solvent, a lithium salt, and an additive comprising (a) a compd. represented by the formula  $[(R_1)_nC_6H(6-n+m)(X)_m]$ , and (b) a compd. selected from the group consisting of a sulfone-based compd., a poly(ester) (meth)acrylate, a polymer of poly(ester) (meth)acrylate, and a mixt. thereof: wherein  $R_1$  is a C1-10 alkyl, a C 1-10 alkoxy, or a C6-10 aryl, and preferably a Me, Et, or methoxy, X is a halogen, and m and n are integers ranging from 1 to 5, where  $m+n$  is less than or equal to 6.

IT 126-58-9DP, Dipentaerythritol, reaction product with  $\epsilon$ -caprolactone

(electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)

RN 126-58-9 HCA

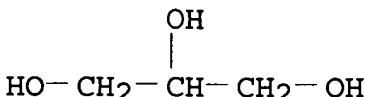
CN 1,3-Propanediol, 2,2'-[oxybis(methylene)]bis[2-(hydroxymethyl)-(9CI) (CA INDEX NAME)



IT 56-81-5, Glycerol, uses 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone 94-36-0, Benzoyl peroxide, uses 105-64-6, Diisopropyl peroxy dicarbonate 105-74-8, Lauroyl peroxide 126-33-0, Tetramethylene sulfone 127-63-9, Phenyl sulfone 620-32-6, Benzyl sulfone 1561-49-5, Dicyclohexyl peroxy dicarbonate 1712-87-4, m-Toluoyl peroxide 3006-82-4, tert-Butylperoxy-2-ethyl-hexanoate 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl)peroxy dicarbonate 32752-09-3, Isobutyl peroxide 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide (electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)

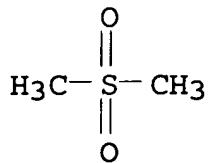
RN 56-81-5 HCA

CN 1,2,3-Propanetriol (CA INDEX NAME)

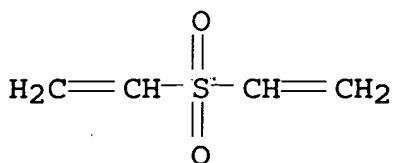


RN 67-71-0 HCA

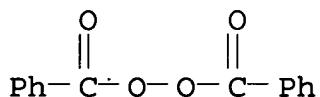
CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)



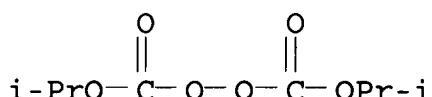
RN 77-77-0 HCA  
 CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



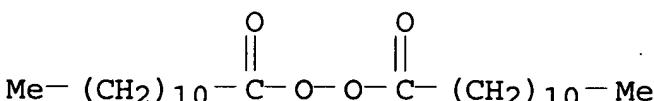
RN 94-36-0 HCA  
 CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



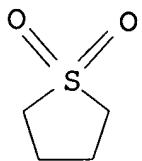
RN 105-64-6 HCA  
 CN Peroxydicarbonic acid, bis(1-methylethyl) ester (9CI) (CA INDEX NAME)



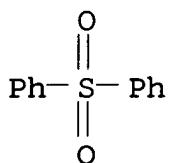
RN 105-74-8 HCA  
 CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



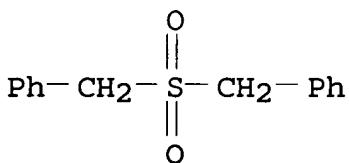
RN 126-33-0 HCA  
 CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



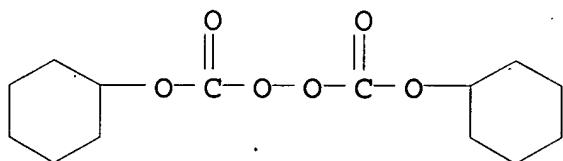
RN 127-63-9 HCA  
 CN Benzene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



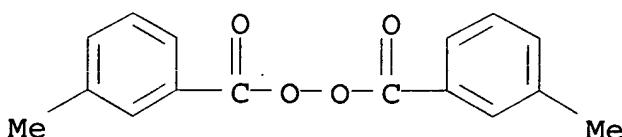
RN 620-32-6 HCA  
 CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (9CI) (CA INDEX NAME)



RN 1561-49-5 HCA  
 CN Peroxydicarbonic acid, dicyclohexyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)

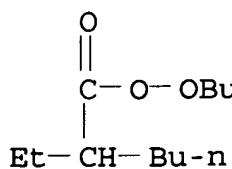


RN 1712-87-4 HCA  
 CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



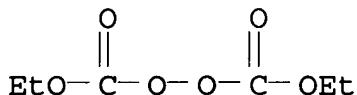
RN 3006-82-4 HCA

CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



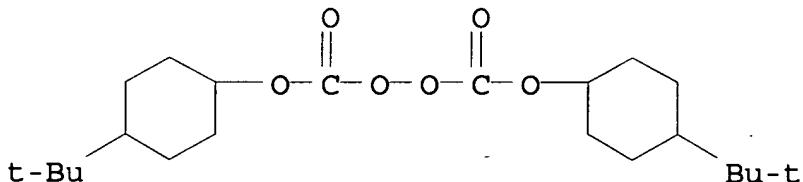
RN 14666-78-5 HCA

CN Peroxydicarbonic acid, diethyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



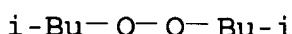
RN 15520-11-3 HCA

CN Peroxydicarbonic acid, bis[4-(1,1-dimethylethyl)cyclohexyl] ester (9CI) (CA INDEX NAME)



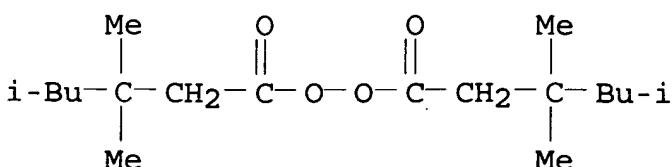
RN 32752-09-3 HCA

CN Peroxide, bis(2-methylpropyl) (CA INDEX NAME)



RN 92177-99-6 HCA

CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



IC ICM H01M006-18  
INCL 429307000; 429309000; 429326000; 429322000; 429323000; 429330000  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
ST lithium battery electrolyte overcharge lowering  
IT **Battery electrolytes**  
    (electrolyte for lithium **battery** to reduce  
    overcharge and improve electrochem. characteristics)  
IT **Secondary batteries**  
    (lithium; electrolyte for lithium **battery** to  
    reduce overcharge and improve electrochem. characteristics)  
IT **Peroxides, uses**  
    (org.; electrolyte for lithium **battery** to  
    reduce overcharge and improve electrochem. characteristics)  
IT **Alcohols, uses**  
    (trihydric; electrolyte for lithium **battery**  
    to reduce overcharge and improve electrochem. characteristics)  
IT 3087-37-4, **Tetrapropyltitanate**  
    (electrolyte for lithium **battery** to reduce  
    overcharge and improve electrochem. characteristics)  
IT 71-43-2, Benzene, uses 96-49-1, Ethylene carbonate 105-58-8,  
Diethyl carbonate 108-32-7, Propylene carbonate 108-88-3,  
Toluene, uses 462-06-6, Fluorobenzene 616-38-6, Dimethyl  
carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl  
carbonate 1330-20-7, Xylene, uses 4437-85-8, Butylene carbonate  
7447-41-8, Lithium chloride (LiCl), uses 7791-03-9, Lithium  
perchlorate 10377-51-2, Lithium iodide (LiI) 12355-58-7, Lithium  
aluminate (Li<sub>5</sub>AlO<sub>4</sub>) 14283-07-9, Lithium tetrafluoroborate  
18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium  
hexafluorophosphate 27359-10-0, Trifluorotoluene 29935-35-1,  
Lithium hexafluoroarsenate 33454-82-9, Lithium triflate  
35363-40-7, Ethyl propyl carbonate, uses 56525-42-9, Methyl propyl  
carbonate, uses 90076-65-6 131651-65-5, Lithium  
perfluorobutanesulfonate  
    (electrolyte for lithium **battery** to reduce  
    overcharge and improve electrochem. characteristics)  
IT 126-58-9DP, Dipentaerythritol, reaction product with  
ε-caprolactone 502-44-3DP, ε-Caprolactone,  
reaction product with dipentaerythritol 609772-45-4P  
    (electrolyte for lithium **battery** to reduce  
    overcharge and improve electrochem. characteristics)  
IT 56-81-5, Glycerol, uses 67-71-0, Methyl sulfone  
77-77-0, Vinyl sulfone 79-10-7D, Acrylic acid,  
ω-fatty acid esters C2-C21 79-41-4D, Methacrylic  
acid, ω-fatty acid esters C2-C21 94-36-0, Benzoyl  
peroxide, uses 104-92-7, 4-Bromoanisole 105-64-6,  
Diisopropyl peroxy dicarbonate 105-74-8, Lauroyl peroxide  
126-33-0, Tetramethylene sulfone 127-63-9, Phenyl  
sulfone 149-32-6, Erythritol 452-10-8, 2,4-Difluoroanisole

456-49-5, 3-Fluoroanisole 459-60-9, 4-Fluoroanisole  
 620-32-6, Benzyl sulfone 623-12-1, 4-Chloroanisole  
 1561-49-5, Dicyclohexyl peroxy dicarbonate 1712-87-4  
 , m-Toluoyl peroxide 2398-37-0, 3-Bromoanisole 2845-89-8,  
 3-Chloroanisole 3006-82-4, tert-Butylperoxy-2-ethyl-  
 hexanoate 14666-78-5 15520-11-3,  
 Bis(4-tert-butylcyclohexyl)peroxy dicarbonate 28452-93-9,  
 Butadiene sulfone 32752-09-3, Isobutyl peroxide  
 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide 93343-10-3,  
 3,5-Difluoroanisole 202925-08-4, 3-Chloro-5-fluoroanisole  
 609365-67-5  
 (electrolyte for lithium **battery** to reduce  
 overcharge and improve electrochem. characteristics)

L72 ANSWER 6 OF 6 HCA COPYRIGHT 2007 ACS on STN

139:182872 Polymer **electrolyte** for lithium secondary  
**battery**. Jung, Cheol-Soo; Kim, Ki-Ho; Bong, Cul-Hwen; Yang,  
 Doo-Kyung; Lee, Kyoung-Hee; Lee, Yong-Beom; Lim, Hyun-Leong;  
 Yamaguchi, Takitaro; Shimizu, Ryuichi (Samsung SDI Co., Ltd., S.  
 Korea). U.S. Pat. Appl. Publ. US 2003157411 A1 20030821, 14 pp.  
 (English). CODEN: USXXCO. APPLICATION: US 2002-287486 20021105.  
 PRIORITY: KR 2002-8303 20020216.

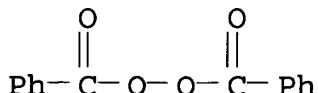
AB A solid polymer **electrolyte**, a lithium **battery**  
 employing the same, and methods of forming the **electrolyte**  
 and the lithium **battery** are disclosed. The polymer  
**electrolyte** includes polyester **methacrylate** having  
 a polyester **polyol** moiety having three or more hydroxide  
 (-OH) groups, at least one hydroxide group being substituted by a  
**methacrylic** ester group and at least one hydroxide group  
 being substituted by a radical non-reactive group, or its polymer, a  
 peroxide having 6-40 carbon atoms, and an **electrolytic**  
 soln. including a lithium salt and an org. solvent.

IT 94-36-0, Benzoyl peroxide, processes 105-74-8,  
 Lauroyl peroxide

(polymer **electrolyte** for lithium secondary  
**battery**)

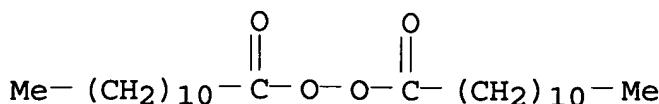
RN 94-36-0 HCA

CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



RN 105-74-8 HCA

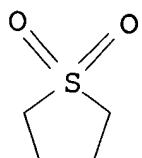
CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



IT 126-33-0, Sulfolane  
(polymer **electrolyte** for lithium secondary  
**battery**)

RN 126-33-0 HCA

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



IC ICM H01M010-40  
ICS H01M010-04

INCL 429317000; 429307000; 429316000; 029623100

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 38

ST polymer **electrolyte** lithium secondary **battery**

IT Aromatic hydrocarbons, uses  
(fluoro; polymer **electrolyte** for lithium secondary  
**battery**)

IT Secondary **batteries**  
(lithium; polymer **electrolyte** for lithium secondary  
**battery**)

IT **Battery electrolytes**  
Polymer **electrolytes**  
(polymer **electrolyte** for lithium secondary  
**battery**)

IT Polyesters, uses  
(polymer **electrolyte** for lithium secondary  
**battery**)

IT 3087-37-4, Tetrapropyltitanate  
(polymer **electrolyte** for lithium secondary  
**battery**)

IT 94-36-0, Benzoyl peroxide, processes 105-74-8,  
Lauroyl peroxide  
(polymer **electrolyte** for lithium secondary  
**battery**)

IT 67-68-5, Dmso, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile,  
uses 96-47-9, 2-Methyltetrahydrofuran 96-48-0,  
 $\gamma$ -Butyrolactone 96-49-1, Ethylene carbonate 98-95-3,

Nitrobenzene, uses 100-47-0, Benzonitrile, uses 105-58-8,  
Diethyl carbonate 108-32-7, Propylene carbonate 108-90-7,  
Chlorobenzene, uses 109-99-9, Thf, uses 110-71-4,  
1,2-Dimethoxyethane 111-46-6, Diethylene glycol, uses 115-10-6,  
Dimethyl ether 126-33-0, Sulfolane 127-19-5,  
Dimethylacetamide 542-52-9, Dibutyl carbonate 616-38-6, Dimethyl  
carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl  
carbonate 646-06-0, Dioxolane 872-36-6, Vinylene carbonate  
1072-47-5, 1,3-Dioxolane, 4-methyl 1300-21-6, Dichloroethane  
4437-85-8, Butylene carbonate 6482-34-4, Diisopropyl carbonate  
7447-41-8, Lithium chloride (LiCl), uses 7791-03-9, Lithium  
perchlorate 9002-88-4, Polyethylene 9003-07-0, Polypropylene  
10377-51-2, Lithium iodide (LiI) 14024-11-4, Aluminum lithium  
chloride ~~allicl4~~ 14283-07-9, Lithium tetrafluoroborate  
18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium  
hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate  
30714-78-4, Ethyl butyl carbonate 33454-82-9, Lithium triflate  
51729-83-0, Methyl isopropyl carbonate 56525-42-9, Methyl propyl  
carbonate, uses 90076-65-6 131651-65-5  
(polymer electrolyte for lithium secondary  
battery)

IT 95-52-3, 2-Fluorotoluene 352-32-9, 4-Fluorotoluene 352-70-5,  
3-Fluorotoluene 462-06-6, Benzene, fluoro- 581054-59-3D, mixed  
acrylic and pentanoic acid esters  
(polymer electrolyte for lithium secondary  
battery)

=>